



**Downstream Areas Pre-Design
Study**

**Pre-Design Study
Mayflower Pipeline Incident Response, Mayflower, Arkansas**

As requested by the Arkansas Department of Environmental Quality, please find enclosed tables, figures, and a photolog presenting the pre-design study data in the cove. The activities were completed in accordance with Appendix O of the Downstream Areas Data Assessment Report (ARCADIS 2014). These activities were completed between March 31 and April 9, 2014 in the Inlet Channel, Open Water Area, and Heavily Vegetated Area to:

- Confirm and refine the boundaries of the mitigation area
- Confirm the preferred remedial alternative approach
- Support the design and permitting of the preferred remedial alternative

Activities included sediment probing and sheen stir tests from co-located sediment cores. Sediment probing activities were conducted in three increments: surface, 0 to 6 inches below sediment surface, and 6 to 12 inches below sediment surface. The sheen stir tests from these sediment cores were conducted for the following increments:

- *Inlet Channel:* 0 to 6 inches, 6 to 12 inches, and subsequent 6-inch intervals until a stir test with no sheen was observed. The relative amount of sheening was estimated for each interval.
- *Open Water Area:* 0 to 6 inches and 6 to 12 inches. The relative amount of sheening was estimated for each interval.
- *Heavily Vegetated Area:* 0 to 0.1 inch and 0.1 to 6 inches. The relative amount of sheening was estimated for the overall location.

Data collected during these activities are included in Tables 1 and 2. A data rating system is described in Table 3. Based on the data and the rating system described in these tables, sheens generated at each location were characterized as lighter, medium, or heavier (Tables 4 and 5). The qualitative sheening amounts observed at each location are shown on Figures 1 through 3. Photographs that were taken to record observations during probing and sheen stir tests are included in the attached photolog.

In addition to the activities described above, sediment probing was conducted in the Cove Probing Area to assess the presence of sheen-bearing material (Table 6). The Cove Probing Area was downstream and northeast of the area identified for potential sheen mitigation in the Downstream Areas Data Assessment Report (ARCADIS 2014). There were no sheens observed during the probing activities in this area.

The interpretation of the pre-design study data and the refined mitigation area will be included in the forthcoming Mitigation Action Plan submittal in May 2014.

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Attachments

Tables

Table 1	Probing Notes – Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area
Table 2	Sheen Stir Test Notes – Dawson Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area
Table 3	Rating System for Overall Qualitative Sheening Amount
Table 4	Summary of Pre-Design Study Activities – Cove Inlet Channel and Open Water Area
Table 5	Summary of Pre-Design Study Activities – Cove Heavily Vegetated Area
Table 6	Cove Probing Area Field Notes

Figures

Figure 1	Cove Inlet Channel Sampling Locations
Figure 2	Cove Open Water Area Sampling Locations
Figure 3	Cove Heavily Vegetated Area and Probing Area Sampling Locations

Downstream Areas Pre-Design Study Photolog



Tables

Table 1
Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
Cove Inlet Channel								
IC-1	4/1/2014	10:05	1.3	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-2	4/1/2014	10:20	1.2	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide)
IC-3	4/1/2014	10:40	1.2	12	No	Surface 0-6 6-12	No Yes No	Patches/streamers of non-brittle sheen on the edge of the creek. Patches/streamers of non-brittle silver gray sheen --
IC-4	4/1/2014	11:00	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-5	4/1/2014	11:15	1.0	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-6	4/1/2014	11:35	1.1	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches of non-brittle silver gray sheen Patches of non-brittle silver gray sheen
IC-7	4/1/2014	11:50	0.8	12	No	Surface 0-6 6-12	No Yes No	-- Patch of non-brittle silver gray sheen (light) --
IC-8	4/1/2014	13:05	1.0	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches/streamers of non-brittle silver gray sheen with <0.25-inch wide oil spots Patches/streamers of non-brittle silver gray sheen with <0.25-inch wide oil spots
IC-9	4/1/2014	13:25	0.9	12	No	Surface 0-6 6-12	No Yes No	-- Patches of non-brittle silver gray sheen (quickly dissipated) --
IC-10	4/1/2014	13:40	1.3	12	No	Surface 0-6 6-12	No Yes No	-- Patches of non-brittle silver gray sheen (quickly dissipated) --
IC-11	4/1/2014	13:55	0.7	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-12	4/1/2014	14:20	1.0	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated) Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated)

Table 1
Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
IC-13	4/1/2014	14:35	0.4	12	Patches of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
IC-14	4/1/2014	14:50	0.9	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches/streamers of non-brittle silver gray sheen (quickly dissipated) Patches/streamers of non-brittle silver gray sheen (quickly dissipated)
IC-15	4/1/2014	15:05	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-16	4/1/2014	15:20	1.0	12	Cover of brittle silver gray sheen	Surface 0-6 6-12	No Yes Yes	-- Streamers (< 2 inches) of non-brittle silver gray sheen Streamer (< 2 inches) of non-brittle silver gray sheen
IC-17	4/1/2014	15:40	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-18	4/1/2014	15:55	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-19	4/1/2014	16:10	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-20	4/1/2014	16:25	1.0	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-21	4/1/2014	16:35	0.8	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches/streamers of non-brittle silver gray sheen (quickly dissipated) Patches/streamers of non-brittle silver gray sheen (quickly dissipated)
IC-22	4/1/2014	17:10	0.5	12	Cover of brittle rainbow sheen	Surface 0-6 6-12	Yes Yes Yes	Streamers of non-brittle silver gray sheen (quickly dissipated) Streamers of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen
IC-23	4/2/2014	8:40	0.5	12	Cover of non-brittle rainbow sheen	Surface 0-6 6-12	No No No	-- -- --
IC-24	4/2/2014	9:00	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
IC-25	4/2/2014	9:10	0.8	12	No	Surface 0-6 6-12	Yes No No	Patches of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide; quickly dissipated) -- --

Table 1
Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
Cove Open Water Area								
OW-1	4/2/2014	10:00	--	12	Patches of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-2	4/2/2014	10:55	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-3	4/2/2014	11:10	0.5	12	Cover of brittle and non-brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-4	4/2/2014	13:10	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-5	4/2/2014	10:20	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-6	4/2/2014	10:40	0.2	12	Cover of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-7	4/3/2014	10:15	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-8	4/3/2014	11:03	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-9	4/3/2014	10:51	0.7	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-10	4/3/2014	10:30	0.2	12	Cover of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-11	4/2/2014	11:30	0.5	12	Cover of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-12	4/2/2014	13:00	0.3	12	Patches of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
OW-13	4/3/2014	11:15	0.2	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-14	4/4/2014	13:18	0.2	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-15	4/3/2014	9:22	1.0	12	No	Surface 0-6 6-12	No Yes Yes	-- Streamers of non-brittle silver gray (quickly dissipated) Streamers of non-brittle silver gray (quickly dissipated)
OW-16	4/3/2014	9:02	1.0	12	Patches/streamers of non-brittle silver gray (very light)	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray (very small for picture) Patches/streamers of non-brittle silver gray (very small for picture) Patches/streamers of non-brittle silver gray (very small for picture)
OW-17	4/3/2014	8:46	0.3	12	No	Surface 0-6 6-12	No No Yes	-- -- Streamers of non-brittle silver gray sheen
OW-18	4/2/2014	13:40	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-19	4/2/2014	13:25	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-20	4/3/2014	10:21	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-21	4/3/2014	9:48	--	12	Patches of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Streamers of non-brittle silver gray sheen (no photo) Streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen with 4 oil spots (0.1 to 0.25-inch wide)
OW-22	4/2/2014	16:32	0.6	12	Patches/streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 3 oil spots (0.1-inch wide) Patches/streamers of non-brittle silver gray sheen with 0.1-inch wide oil spots Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide)
OW-23	4/3/2014	10:50	0.3	12	Streamers of brittle and non-brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-24	4/2/2014	15:00	1.0	12	No	Surface 0-6 6-12	No Yes Yes	-- Streamers of non-brittle silver gray sheen with 1 oil spot (<0.13-inch wide; quickly dissipated) Streamers of non-brittle silver gray sheen with 1 oil spot (<0.13-inch wide; quickly dissipated)

Table 1
Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
OW-25	4/2/2014	15:15	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-26	4/3/2014	10:05	0.4	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-27	4/2/2014	16:17	0.9	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide) Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen
OW-28	4/2/2014	16:51	1.1	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot
OW-29	4/2/2014	14:35	0.5	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) Patches of non-brittle silver gray sheen (light sheen; quickly dissipated)
OW-30	4/2/2014	15:50	0.1	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-31	4/2/2014	16:00	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-32	4/2/2014	16:15	0.5	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches of non-brittle silver gray sheen (light sheen; quickly dissipated) Patches of non-brittle silver gray sheen (light sheen; quickly dissipated)
OW-33	4/2/2014	16:01	1.2	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of silver gray sheen Patches/streamers of silver gray sheen Patches/streamers of silver gray sheen
OW-34	4/2/2014	13:30	1.3	12	Patch/streamer of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patch/streamer of non-brittle silver gray sheen Patch/streamer of non-brittle silver gray sheen with 4 oil spots (0.1-inch wide) Patch/streamer of non-brittle silver gray sheen
OW-35	4/3/2014	11:05	0.3	12	Cover/patches of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-36	4/2/2014	16:50	0.6	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-37	4/2/2014	9:51	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
OW-38	4/2/2014	10:15	0.8	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-39	4/2/2014	15:47	0.9	12	No	Surface 0-6 6-12	Yes Yes No	Patches/streamers of non-brittle silver gray Patches/streamers of non-brittle silver gray --
OW-40	4/2/2014	15:23	1.5	12	No	Surface 0-6 6-12	No Yes Yes	-- Patches/streamers of silver gray sheen with 1 oil spot (0.25-inch wide) Streamers of silver gray sheen
OW-41	4/2/2014	15:08	1.6	12	Streamers of non-brittle silver gray sheen (very light)	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen (very light sheen) Patches/streamers of non-brittle silver gray sheen (very light sheen) Patches/streamers of non-brittle silver gray sheen (very light sheen)
OW-42	4/2/2014	13:15	1.4	12	Patches of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patch/streamer of non-brittle silver gray sheen Patch/streamer of non-brittle silver gray sheen Patch/streamer of non-brittle silver gray sheen
OW-43	4/2/2014	9:31	0.7	12	No	Surface 0-6 6-12	No Yes Yes	-- Patch of silver gray sheen Patch of silver gray sheen
OW-44	4/2/2014	10:06	0.8	12	Streamers of non-brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
OW-45	4/2/2014	10:54	1.6	12	Patches/streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle rainbow sheen (heavy sheen)
OW-46	4/2/2014	11:24	1.7	12	4-5 patches of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Streamers of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen
OW-47	4/3/2014	11:20	0.5	12	Streamers of non-brittle rainbow sheen	Surface 0-6 6-12	Yes Yes Yes	Patches of non-brittle silver gray sheen Patches of non-brittle silver gray sheen Patches of non-brittle silver gray sheen
OW-48	4/3/2014	8:45	0.3	12	Patches/streamers of non-brittle silver gray sheen with oil spot (<0.25-inch wide)	Surface 0-6 6-12	No No No	-- -- --

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Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
OW-49	4/2/2014	10:29	0.9	12	Streamers of non-brittle rainbow sheen with 8 oil spots (<0.25-inch wide)	Surface 0-6 6-12	Yes Yes Yes	Patches of non-brittle silver gray sheen Patches of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen
OW-50	4/2/2014	11:09	2.0	12	Streamers of non-brittle rainbow sheen with about 100 oil spots (0.25 to 0.5-inch wide)	Surface 0-6 6-12	Yes Yes Yes	Streamers of non-brittle silver gray sheen with 5 oil spots (0.25-inch wide) Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide) Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide)
OW-51	4/2/2014	12:56	1.4	12	Patch/streamer of non-brittle rainbow sheen with about 100 oil spots	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 2 oil spots (<0.25-inch wide) Patches/streamers of non-brittle silver gray sheen with 4 oil spots (<0.25-inch wide) Patches/streamers of non-brittle silver gray sheen with 5 oil spots (0.1-inch wide)
OW-52	4/3/2014	9:00	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-53	4/3/2014	9:15	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-54	4/3/2014	9:25	0.3	12	Cover of brittle rainbow sheen	Surface 0-6 6-12	No No No	-- -- --
OW-55	4/9/2014	10:20	0.7	12	No	Surface 0-6 6-12	No Yes Yes	-- Streamers of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen
OW-56	4/9/2014	10:40	0.2	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-57	4/9/2014	10:50	--	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-58	4/9/2014	11:10	Dry land	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-59	4/9/2014	12:45	0.7	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-60	4/9/2014	13:10	0.1	12	No	Surface 0-6 6-12	No No No	-- -- --

Table 1
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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
OW-61	4/9/2014	13:25	0.3	12	No	Surface 0-6 6-12	No No No	-- -- --
OW-62	4/9/2014	13:40	0.7	12	No	Surface 0-6 6-12	Yes Yes Yes	Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide) Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide)
Cove Heavily Vegetated Area								
VA-1	4/1/2014	9:51	0.2	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-2	4/1/2014	10:15	1.0	12	Patches of brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
VA-3	4/1/2014	10:35	0.9	12	No	Surface 0-6 6-12	Yes Yes No	Patches/streamers of non-brittle silver gray sheen (light) Patches/streamers of non-brittle silver gray sheen (light) --
VA-4	4/1/2014	10:58	0.9	12	Patches of non-brittle silver gray sheen	Surface 0-6 6-12	No Yes Yes	-- Streamer (< 6") of non-brittle silver gray sheen Streamer (< 6") of non-brittle silver gray sheen (light)
VA-5	4/1/2014	11:25	1.8	12	No	Surface 0-6 6-12	No No Yes	-- -- Patch (< 1") of non-brittle silver gray sheen (more sheen with very aggressive agitation)
VA-6	4/1/2014	13:16	1.7	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-7	4/1/2014	13:26	1.9	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-8	4/1/2014	13:38	2.1	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-9	4/1/2014	13:57	1.8	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-10	4/1/2014	14:18	1.5	12	Streamer of non-brittle silver gray sheen with 4 oil spots (<0.1-inch)	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen

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Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
VA-11	4/1/2014	14:39	0.7	12	Patches/streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen (light) Patches/streamers of non-brittle silver gray sheen
VA-12	4/1/2014	14:57	0.7	12	Patches/streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Streamer of non-brittle rainbow sheen with 3 oil spots (<0.25-inch wide) Streamer of non-brittle silver gray sheen
VA-13	4/1/2014	15:19	1.4	12	Patches of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches of non-brittle silver gray sheen Patches of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen
VA-14	4/1/2014	15:42	1.1	12	Patches/streamers of non-brittle silver gray sheen (3-4 patches, 1 streamer)	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen Streamers of non-brittle rainbow sheen with 2 oil spots (<0.5-inch wide) Patches/streamers of non-brittle silver gray sheen
VA-15	4/1/2014	15:56	1.1	12	No	Surface 0-6 6-12	No No No	Few small patches after heavy agitation -- --
VA-16	4/1/2014	16:24	0.9	12	Patch of non-brittle rainbow sheen with 1 oil spot (0.25-inch wide)	Surface 0-6 6-12	No No No	-- -- --
VA-17	4/1/2014	16:40	1.0	12	No	Surface 0-6 6-12	No No No	Small streamer and patches after heavy agitation -- --
VA-18	4/1/2014	16:55	2.0	12	Streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches of non-brittle silver gray sheen Streamers of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide) Streamers of non-brittle silver gray sheen with 1 oil spot (<0.25-inch wide)
VA-19	4/4/2014	9:07	1.1	12	Streamers of non-brittle silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
VA-20	4/4/2014	9:26	1.4	12	Streamers of silver gray sheen	Surface 0-6 6-12	No No No	-- -- --
VA-21	4/4/2014	9:41	1.4	12	No	Surface 0-6 6-12	No Yes No	-- Streamers of non-brittle silver gray sheen with 1 oil spot (0.1-inch wide, very light) --
VA-22	4/4/2014	9:54	1.3	12	No	Surface 0-6 6-12	No No No	-- -- --

Table 1
Probing Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed	Probing Sheen Characterization
VA-23	4/4/2014	10:07	1.2	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-24	4/4/2014	10:22	1.5	12	No	Surface 0-6 6-12	No No Yes	-- -- Patches of non-brittle silver gray sheen with 1 oil spot (0.1-inch wide)
VA-25	4/4/2014	10:43	1.7	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-26	4/4/2014	11:03	1.1	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-27	4/4/2014	11:20	2.1	12	No	Surface 0-6 6-12	No No No	-- -- --
VA-28	4/4/2014	13:50	0.9	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 1 oil spot (0.25-inch wide) Patches/streamers of non-brittle rainbow sheen with 3 oil spots Patches/streamers of non-brittle silver gray sheen with 4 oil spots (0.1-inch wide)
VA-29	4/4/2014	14:19	0.8	12	No	Surface 0-6 6-12	Yes Yes Yes	Patches/streamers of non-brittle silver gray sheen with 2 oil spots (0.1-inch wide) Patches/streamers of non-brittle silver gray sheen Patches/streamers of non-brittle silver gray sheen
VA-30	4/4/2014	14:34	0.3	12	No	Surface 0-6 6-12	No No Yes	-- -- Streamers of non-brittle silver gray sheen
VA-31	4/4/2014	14:50	0.9	12	Patches/streamers of non-brittle silver gray sheen	Surface 0-6 6-12	Yes Yes Yes	Patches of non-brittle silver gray sheen Patches/streamers of non-brittle rainbow sheen Patches/streamers of non-brittle rainbow sheen
VA-32	4/4/2014	15:15	0.3	12	No	Surface 0-6 6-12	No No Yes	-- -- Streamers of non-brittle silver gray sheen

Notes:

1. The surface probing included a gentle probing of the surface of the sediment.

-- = not applicable or not measured

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
Cove Inlet Channel									
IC-1	4/1/2014	10:05	18	12	0-6	No	--	--	Light reddish brown (0-3") grading to gray (3-6") silt with clay (MH)
					6-12	No	--	--	Gray silt with clay (MH)
IC-2	4/1/2014	10:20	24	20	0-6	Yes	Cover of rainbow sheen	Heavier	Gray silty humic material
					6-12	Yes	Cover of rainbow sheen	Heavier	Gray silty humic material (6-10") and gray and reddish brown clayey sand (SC; 10-12")
					12-18	No	--	--	Gray and reddish brown clayey sand (SC)
IC-3	4/1/2014	10:40	24	20	0-6	No	--	--	Light brown silt (ML)
					6-12	No	--	--	Light brown silt (with clay from 8-12")
					12-18	No	--	--	Light brown silt with clay (12-18"), gray and reddish brown silty clay (CL) (18-20")
IC-4	4/1/2014	11:00	12	12	0-6	No	--	--	Reddish brown silty clay (CL), soft
					6-12	No	--	--	6-8" - Reddish brown silty clay (CL), soft; 8-12" - Gray clayey sand (SC)
IC-5	4/1/2014	11:15	30	12	0-6	No	--	--	Gray humic material with clay, soft
					6-12	No	--	--	6-9" - Coarse sand (SW); 9-12" - Gray clayey sand
IC-6	4/1/2014	11:35	20	12	0-6	Yes	Streamers of silver gray sheen	Medium	0-3" - Gray silt with humic material; 3-6" - Light reddish brown and gray mottled silty sand (SM), very firm sand
					6-12	No	--	--	Light reddish brown and gray mottled silty sand (SM), very firm sand
IC-7	4/1/2014	11:50	24	15	0-6	No	--	--	--
					6-12	No	--	--	--
					12-15	No	--	--	--
IC-8	4/1/2014	13:05	24	24	0-6	Yes	Cover of rainbow sheen	Heavier	Gray silty clay (CL) with humic material, soft
					6-12	Yes	Patch of silver gray sheen	Lighter	Gray silty clay (CL) with humic material, soft
					12-18	No	--	--	Gray silty clay (CL) with humic material, soft
					18-24	No	--	--	18-20" - Gray silty clay (CL) with humic material, soft; 20-24" Gray clayey silt (MH)
IC-9	4/1/2014	13:25	24	18	0-6	No	--	--	Coarse sand (SW) with humic material
					6-12	No	--	--	Gray silty clay (CL) with humic material
					12-18	No	--	--	Gray silty clay (CL) with humic material; black wood at 14-18"
IC-10	4/1/2014	13:40	18	12	0-6	No	--	--	--
					6-12	No	--	--	--
IC-11	4/1/2014	13:55	15	15	0-6	No	--	--	Reddish brown silty clay (CL), soft
					6-12	Yes	Streamer of silver gray sheen	Lighter	Reddish brown silty clay (CL), soft
					12-15	No	--	--	Silty clay with woody material
IC-12	4/1/2014	14:20	24	24	0-6	Yes	Streamers of silver gray sheen	Medium	Gray silty clay with humic material
					6-12	No	--	--	Gray silty clay with humic material
					12-18	No	--	--	Gray silty clay with humic material
					18-24	No	--	--	Gray silty clay with humic material
IC-13	4/1/2014	14:35	18	12	0-6	No	--	--	Gray clayey silt (MH) with humic material to 5"
					6-12	No	--	--	Gray clayey silt (MH)
IC-14	4/1/2014	14:50	18	14	0-6	Yes	Streamer of silver gray sheen	Lighter	Gray and reddish brown silty clay (CL), soft
					6-12	Yes	Streamer of silver gray sheen	Lighter	Gray and reddish brown silty clay (CL), soft
					12-14	No	--	--	Gray and reddish brown silty clay (CL), soft

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
IC-15	4/1/2014	15:05	15	15	0-6	No	--	--	Gray silty clay with humic material
					6-12	No	--	--	6-10" - Gray silty clay with humic material; 10-12" Light brown silt with clay (MH)
					12-15	No	--	--	Light brown silt with clay (MH)
IC-16	4/1/2014	15:20	18	16	0-6	No	--	--	Gray and reddish brown silt with clay
					6-12	No	--	--	Gray and reddish brown silt with clay
					12-16	No	--	--	Gray and reddish brown silt with clay
IC-17	4/1/2014	15:40	15	14	0-6	No	--	--	--
					6-12	Yes	Streamers of silver gray sheen	Lighter	--
					12-14	No	--	--	--
IC-18	4/1/2014	15:55	28	28	0-6	No	--	--	Gray silty clay with humic material, soft
					6-12	No	--	--	Reddish brown silty sand (SM)
					12-18	No	--	--	12-17" - Reddish brown silty sand (SM); 17-28" - Gray clayey silt (MH)
IC-19	4/1/2014	16:10	18	16	0-6	No	--	--	0-4" - Gray clayey silt (MH), soft; 4-6" - Reddish brown silty sand (SM)
					6-12	No	--	--	6-10"- Reddish brown silty sand (SM); 10-12" Gray silt with clay (MH) and humic material
					12-16	No	--	--	Gray silt with clay (MH) and humic material, wood at 13"
IC-20	4/1/2014	16:25	18	18	0-6	No	--	--	Light brown and red mottled clayey silt (MH)
					6-12	No	--	--	Light brown and red mottled clayey silt (MH)
					12-18	No	--	--	Gray clayey sand (SC)
IC-21	4/1/2014	16:35	18	17	0-6	No	--	--	0-3" - Gray humic material with silty clay; 3-6" - Light reddish brown clayey sand (SC)
					6-12	No	--	--	Light reddish brown clayey sand (SC)
					12-17	No	--	--	12-15" - Light reddish brown clayey sand (SC); 15-17" - Gray silty clay with humic material
IC-22	4/1/2014	17:10	24	24	0-6	Yes	Streamer of silver gray sheen	Lighter	Gray silty clay with humic material
					6-12	Yes	Streamer of silver gray sheen	Lighter	Gray silty clay with humic material
					12-15	Yes	Streamer of silver gray sheen	Lighter	Light brown clayey silt
IC-23	4/2/2014	8:40	24	22	18-24	No	--	--	Light brown clayey silt
					0-6	No	--	--	Gray silty clay with humic material, soft
					6-12	Yes	Streamer of silver gray sheen	Lighter	Gray silty clay with humic material, soft
IC-24	4/2/2014	9:00	18	18	12-18	Yes	Streamer of silver gray sheen	Lighter	Light brown silt with clay
					18-22	No	--	--	Light brown silt with clay
					0-6	No	--	--	Light brown clayey silt (MH)
IC-25	4/2/2014	9:10	24	24	6-12	No	--	--	Light brown clayey silt (MH)
					12-18	No	--	--	Light brown clayey sand (SC)
					18-22	No	--	--	Gray silt (ML)
OW-1	4/2/2014	10:00	12	12	0-6	No	--	--	Light brown and reddish mottled silt with clay (MH), humic material at 0-2"
					6-12	No	--	--	Light brown and reddish mottled silt with clay (MH)
					0-6	No	--	--	Gray and reddish brown mottled silt with clay (MH)
OW-2	4/2/2014	10:55	15	15	6-12	Yes	Patch of silver gray sheen	Lighter	Gray and reddish brown mottled silt with clay (MH)

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
OW-3	4/2/2014	11:10	15	15	0-6	No	--	--	Gray and reddish brown mottled clayey silt (MH)
					6-12	Yes	Patches/streamers of silver gray sheen	Lighter	Gray and reddish brown mottled clayey silt (MH)
OW-4	4/2/2014	13:10	12	12	0-6	No	--	--	Light brown and reddish brown mottled silt (ML)
					6-12	No	--	--	Light brown and reddish brown mottled silt (ML)
OW-5	4/2/2014	10:20	15	12	0-6	No	--	--	Light brown and reddish brown mottled silt with clay, some humic material at 0-2"
					6-12	No	--	--	Gray and light brown mottled silt with clay
OW-6	4/2/2014	10:40	15	12	0-6	No	--	--	Gray and reddish brown clayey silt (MH), humic material at 0-2"
					6-12	No	--	--	Gray and reddish brown grading to light brown and reddish brown mottled clayey silt (MH)
OW-7	4/3/2014	10:15	19	19	0-6	No	--	--	Gray silty clay (CL) with roots and organic material
					6-12	No	--	--	6-8" - Gray silty clay (CL) with roots and organic material; 8-12" - Gray and reddish brown mottled clayey silt (MH)
OW-8	4/3/2014	11:03	24	12	0-6	No	--	--	Brown clayey silt with roots
					6-12	No	--	--	Brown clay, medium stiff
OW-9	4/3/2014	10:51	24	18	0-6	No	--	--	Brown clay, some silt, soft
					6-12	No	--	--	Brown clay, stiff
OW-10	4/3/2014	10:30	14	14	0-6	No	--	--	--
					6-12	No	--	--	--
OW-11	4/2/2014	11:30	15	15	0-6	No	--	--	Gray silt with clay (MH), roots, humic material
					6-12	No	--	--	Light brown and reddish silt (ML)
OW-12	4/2/2014	13:00	12	10	0-6	No	--	--	Gray and reddish brown mottled silt with clay (MH); organic material (roots and grass) at 0-2"
					6-10	No	--	--	Gray and reddish brown mottled silt with clay (MH)
OW-13	4/3/2014	11:15	24	12	0-6	No	--	--	Brown silty clay
					6-12	No	--	--	Brown clay
OW-14	4/4/2014	13:18	Not recorded	15	0-6	No	--	--	Brown clayey silt
					6-12	No	--	--	Brown clayey silt
OW-15	4/3/2014	9:22	24	14	0-6	Yes	Patches/streamers of silver gray sheen	Lighter	Brown silty clay, soft, very light sheen at 0-5"
					6-12	No	--	--	Brown clay, medium stiff
OW-16	4/3/2014	9:02	24	12	0-6	Yes	Patches/streamers of rainbow sheen with 10 oil spots (0.1-0.25-inch wide)	Medium	Brown silty clay, very light sheen at 0-4"
					6-12	No	--	--	Red brown clay, stiff
OW-17	4/3/2014	8:46	24	11	0-6	No	--	--	Brown silt, very little sheen at 0-2.4"
					6-11	No	--	--	Brown clay, medium stiff
OW-18	4/2/2014	13:40	12	12	0-6	Yes	Streamer of rainbow sheen	Heavier	0-3" - Gray silty clay (CL), soft; 3-6" - Gray and reddish brown clayey silt (MH)
					6-12	Yes	Patch of silver gray sheen	Lighter	6-10" - Gray and reddish brown clayey silt (MH); 10-12" - Gray silty clay (CL)
OW-19	4/2/2014	13:25	12	12	0-6	Yes	Patches of silver gray sheen	Medium	Gray and reddish brown silt with clay (MH), roots and plant material at 0-2"
					6-12	No	--	--	Gray and reddish brown silt with clay (MH)
OW-20	4/3/2014	10:21	24	11	0-6	Yes	Patches/streamers of rainbow sheen with oil spots	Heavier	Brown silt, soft, light sheen 0-5"
					6-11	No	--	--	Reddish brown clay, soft

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
OW-21	4/3/2014	9:48	Not recorded	12	0-6 6-12	Yes No	Patches/streamers of rainbow sheen --	Medium --	Brown silt, light sheen 0-4" (rainbow sheen patch after agitation of ground using EPA method) Red brown clay, soft
OW-22	4/2/2014	16:32	24	12	0-6 6-12	Yes No	Patches/streamers of silver gray sheen --	Lighter --	Brown silt, very light sheen at 0-2.4" Brown clay, stiff
OW-23	4/3/2014	10:50	15	15	0-6 6-12	No No	-- --	-- --	Gray and reddish brown silt with clay (MH) Light brown and reddish brown mottled silt with clay (MH), soft
OW-24	4/2/2014	15:00	18	18	0-6 6-12	Yes No	Streamer of silver gray sheen --	Lighter --	Gray and reddish brown mottled clayey silt (MH) with roots and plan material Gray and reddish brown mottled clayey silt (MH) with roots and plan material
OW-25	4/2/2014	15:15	15	12	0-6 6-12	No No	-- --	-- --	Gray and reddish brown mottled clayey silt (MH) Gray and reddish brown mottled clayey silt (MH)
OW-26	4/3/2014	10:05	24	12	0-6 6-12	No No	-- --	-- --	Brown silt, rootlets Red brown clay
OW-27	4/2/2014	16:17	24	12	0-6 6-12	Yes No	Patches/streamers of silver gray sheen with 0.25-inch wide oil spot --	Heavier --	Brown clayey silt, very light sheen at 0-2.4" Brown clay, soft
OW-28	4/2/2014	16:51	24	14.4	0-6 6-12	Yes No	Patches/streamers of silver gray sheen with 3 oil spots --	Heavier --	Silty clay, light sheen at 0-2.4" Reddish brown clay, stiff
OW-29	4/2/2014	14:35	12	12	0-6 6-12	No No	-- --	-- --	Gray and reddish brown silt with clay Gray and reddish brown silt with clay
OW-30	4/2/2014	15:50	12	12	0-6 6-12	No No	-- --	-- --	0-5" - Gray silty clay (CL) with humic material, soft; 5-6" - Gray and reddish brown mottled silt with clay (MH) Gray and reddish brown mottled silt with clay (MH)
OW-31	4/2/2014	16:00	12	12	0-6 6-12	No No	-- --	-- --	Gray and reddish brown mottled silt with clay (MH) Gray and reddish brown mottled silt with clay (MH)
OW-32	4/2/2014	16:15	12	12	0-6 6-12	No No	-- --	-- --	-- --
OW-33	4/2/2014	16:01	24	13.2	0-6 6-12	Yes No	Patches/streamers of silver gray sheen --	Medium --	Silty humic material, light sheen Brown silty clay to clay
OW-34	4/2/2014	13:30	24	16	0-6 6-12	Yes Yes	Patches/streamers of rainbow sheen with oil spots Patches/streamers of rainbow sheen	Heavier Medium	Silt with humic material, light sheen at 0-6" Clayey silt, light sheen at 6-10" (Clay at 16" didn't produce sheen)
OW-35	4/3/2014	11:05	14	14	0-6 6-12	No No	-- --	-- --	Gray and reddish brown silt with clay (MH) 6-7" Gray and reddish brown silt with clay (MH); 7-12" - Light brown and reddish brown clayey silt (MH)
OW-36	4/2/2014	16:50	12	12	0-6 6-12	No No	-- --	-- --	0-4" - Gray silty clay (CL) with humic material, soft; 4-6" - Light brown and reddish brown mottled silty clay (CL) Light brown and reddish brown mottled silty clay (CL)
OW-37	4/2/2014	9:51	24	12	0-6 6-12	No No	-- --	-- --	Reddish brown silty clay Red clay

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
OW-38	4/2/2014	10:15	24	13	0-6	No	--	--	Brown clay
					6-12	Yes	Patches/streamers of silver gray sheen	Medium	Brown silty clay
OW-39	4/2/2014	15:47	24	12	0-6	Yes	Streamers of silver gray sheen	Lighter	Brown silty clay, algae 0-2.4"
					6-12	No	--	--	Reddish brown clay, soft
OW-40	4/2/2014	15:23	24	13	0-6	Yes	Patches/streamers of rainbow sheen with 20 oil spots	Heavier	Silty clay, some roots at 5-6", very light sheen at 0-2.4"
					6-12	Yes	Streamers of silver gray sheen with oil spot	Medium	Red brown clay, medium stiff
OW-41	4/2/2014	15:08	24	12	0-6	Yes	Patches/streamers of rainbow sheen	Heavier	Brown silt, very light sheen at 0-2.4"
					6-12	No	--	--	Reddish brown clay, soft
OW-42	4/2/2014	13:15	24	12	0-6	Yes	Patches/streamers of rainbow sheen	Heavier	Brown silt, humic material at 3", light sheen at 0-6"
					6-12	No	--	--	Brown clay
OW-43	4/2/2014	9:31	24	12	0-6	No	--	--	Gray brown clayey silt with rootlets (during mobilization heavy sheen was observed after disturbing oil globule)
					6-12	No	--	--	Dark brown clayey silt with rootlets
OW-44	4/2/2014	10:06	24	11	0-6	No	--	--	Brown clay
					6-11	No	--	--	Red brown clay
OW-45	4/2/2014	10:54	24	15.6	0-6	Yes	Patches/streamers of rainbow sheen with oil spots	Heavier	Brown silt with rootlets, medium sheen at 0-4"
					6-12	No	--	--	Red silty clay
OW-46	4/2/2014	11:24	24	12	0-6	Yes	Patches/streamers of rainbow sheen with oil spots	Heavier	Brown silt, medium sheen at 0-5"
					6-12	Yes	Patches/streamers of rainbow sheen with oil spots	Heavier	Brown silty clay
OW-47	4/3/2014	11:20	12	12	0-6	Yes	Streamers of silver gray sheen	Medium	--
					6-12	Yes	Streamers of silver gray sheen	Lighter	--
OW-48	4/3/2014	8:45	12	12	0-6	No	--	--	Gray and reddish brown mottled silt with clay (MH)
					6-12	No	--	--	Gray and reddish brown mottled silt with clay (MH)
OW-49	4/2/2014	10:29	24	12	0-6	Yes	Patches/streamers of rainbow sheen with 5 oil spots	Heavier	Humic material, visible sheen at 0-5"
					6-12	No	--	--	Brown silty clay, roots
OW-50	4/2/2014	11:09	24	10	0-6	Yes	Patches of silver gray sheen	Lighter	Humic material, light sheen at 0-4"
					6-10	No	--	--	Brown clay
OW-51	4/2/2014	12:56	24	18	0-6	Yes	Patches/streamers of rainbow sheen with oil spots	Heavier	Brown silt, twigs, odor of benzene, medium sheen at 0-4"
					6-12	Yes	Streamers of silver gray sheen	Lighter	Brown clayey silt
OW-52	4/3/2014	9:00	12	11	0-6	No	--	--	--
					6-11	No	--	--	--
OW-53	4/3/2014	9:15	10	10	0-6	No	--	--	Gray and reddish brown mottled clayey silt (MH)
					6-10	No	--	--	Gray and reddish brown mottled clayey silt (MH)
OW-54	4/3/2014	9:25	13	13	0-6	No	--	--	--
					6-12	No	--	--	--

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
OW-55	4/9/2014	10:20	18	18	0-6 6-12	No No	-- --	-- --	Gray clayey silt with organic material Gray and reddish brown mottled clayey silt (MH)
OW-56	4/9/2014	10:40	16	16	0-6 6-12	No No	-- --	-- --	0-5" - Gray silty clay with organic material; 5-6" - Gray and reddish brown mottled clayey silt (MH) Gray and reddish brown mottled clayey silt (MH)
OW-57	4/9/2014	10:50	12	12	0-6 6-12	No No	-- --	-- --	0-4" - Gray silty clay with organic material; 4-6" - Gray and reddish brown clayey silt (MH) Gray and reddish brown clayey silt (MH)
OW-58	4/17/2014	11:10	12	9	0-6 6-9	No No	-- --	-- --	0-4" - Reddish brown clayey silt (MH); 4-6" - Reddish brown silty clay (CL) Reddish brown silty clay (CL)
OW-59	4/9/2014	12:45	15	15	0-6 6-12	No No	-- --	-- --	0-4" - Gray silty clay (CL) with organic material, soft; 4-6" - Gray and reddish brown clayey silt (MH) Gray and reddish brown clayey silt (MH)
OW-60	4/9/2014	13:10	12	10.5	0-6 6-10.5	No No	-- --	-- --	0-2" - Gray silty clay (CL) with organic material; 2-6" - Gray and reddish brown clayey silt (MH) Gray and reddish brown clayey silt (MH)
OW-61	4/9/2014	13:25	16	16	0-6 6-12	No No	-- --	-- --	Gray and reddish brown mottled silt with clay Gray and reddish brown mottled silt with clay
OW-62	4/9/2014	13:40	18	18	0-6 6-12	Yes Yes	Streamers of rainbow sheen Patch of silver gray sheen	Heavier Lighter	Gray silty clay (CL), soft Gray silty clay (CL), soft
Cove Heavily Vegetated Area									
VA-1	4/1/2014	9:51	18	8	0-0.1 0.1-6	No No	-- --	-- --	Humic material with organics Reddish brown clay, no plasticity
VA-2	4/1/2014	10:15	18	3	0-0.1 0.1-3	No No	-- --	-- --	-- --
VA-3	4/1/2014	10:35	24	10.8	0-0.1 0.1-6	No No	-- --	-- --	Humic material with organics Brown silty clay with rootlets
VA-4	4/1/2014	10:58	30	10.8	0-0.1 0.1-6	Yes No	Patches of silver gray sheen --	Lighter --	Humic material with organics Humic material, some clay
VA-5	4/1/2014	11:25	30	9.6	0-0.1 0.1-6	No No	-- --	-- --	Humic material with twigs Reddish brown clay, soft
VA-6	4/1/2014	13:16	24	5	0-0.1 0.1-5	No No	-- --	-- --	Humic material with twigs Humic material with twigs and roots, some clay
VA-7	4/1/2014	13:26	30	9.6	0-0.1 0.1-6	No No	-- --	-- --	Humic material Gray clayey silt
VA-8	4/1/2014	13:38	24	15.6	0-0.1 0.1-6	No Yes	-- Streamers of silver gray sheen	-- Lighter	Brown silt Silt with humic material, some clay
VA-9	4/1/2014	13:57	24	10.8	0-0.1 0.1-6	No No	-- --	-- --	Silt, organic matter (light sheen observed) Silty clay, soft
VA-10	4/1/2014	14:18	24	15.6	0-0.1 0.1-6	Yes No	Streamers of rainbow/silver gray sheen --	Heavier --	Brown silt Humic material with rootlets
VA-11	4/1/2014	14:39	24	12	0-0.1 0.1-6	No Yes	-- Streamers of silver gray sheen	-- Medium	Brown silt, very little visible sheen Silt, humic material, roots, very little sheen in 0.1-4"

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
VA-12	4/1/2014	14:57	30	12	0-0.1 0.1-6	Yes No	Patches of silver gray sheen --	Lighter --	Dark brown silt, very little sheen Brown silty clay
VA-13	4/1/2014	15:19	24	12	0-0.1 0.1-6	Yes No	Streamers of silver gray sheen with occasional oil spots --	Heavier --	Humic material with organics Clayey silt with roots
VA-14	4/1/2014	15:42	18	6	0-0.1 0.1-6	Yes No	Patch of silver gray sheen --	Lighter --	Gray silt with rootlets Gray clayey silt with rootlets
VA-15	4/1/2014	15:56	18	8.4	0-0.1 0.1-6	No No	-- --	-- --	Silt with humic material Brown silt with some clay and rootlets
VA-16	4/1/2014	16:24	18	4	0-0.1 0.1-4	No No	-- --	-- --	Brown humic material with roots Clayey silt with roots
VA-17	4/1/2014	16:40	24	6	0-0.1 0.1-6	No No	-- --	-- --	Brown silt with roots Brown silty clay
VA-18	4/1/2014	16:55	24	13.2	0-0.1 0.1-6	Yes No	Streamers of silver gray sheen --	Medium --	Brown silt with humic material Brown silt with some clay
VA-19	4/4/2014	9:07	48	6	0-0.1 0.1-6	No No	-- --	-- --	Brown humic material Brown clay, soft
VA-20	4/4/2014	9:26	24	12	0-0.1 0.1-6	No No	-- --	-- --	Silt, some clay, roots (minor sheen when boat operated agitated using EPA method) Brown clay, soft
VA-21	4/4/2014	9:41	48	12	0-0.1 0.1-6	No No	-- --	-- --	Brown silt, roots at 2.4" Brown clay, soft
VA-22	4/4/2014	9:54	48	13	0-0.1 0.1-6	No No	-- --	-- --	Brown silt Brown clay, soft
VA-23	4/4/2014	10:07	Not recorded		0-0.1 0.1-6	No No	-- --	-- --	Humic material, roots Brown clay, soft
VA-24	4/4/2014	10:22	42	21.6	0-0.1 0.1-6	Yes No	Patches of rainbow sheen with 1 oil spot (0.25-inch wide) --	Heavier --	Brown silt, saturated (minor sheen when boat operated agitated using EPA method) Brown silt, saturated
VA-25	4/4/2014	10:43	48	7.2	0-0.1 0.1-6	No No	-- --	-- --	Brown clayey humic material Gray clayey silt, soft
VA-26	4/4/2014	11:03	36	18	0-0.1 0.1-6	No No	-- --	-- --	Humic material with roots Brown clayey silt, soft
VA-27	4/4/2014	11:20	48	6	0-0.1 0.1-6	No No	-- --	-- --	Brown silt with roots Brown silt with roots
VA-28	4/4/2014	13:50	36	12	0-0.1 0.1-6	Yes No	Streamers of silver gray sheen --	Lighter --	Brown clayey silt, rootlets Brown clayey silt, soft
VA-29	4/4/2014	14:19	48	12	0-0.1 0.1-6	Yes No	Patches/streamers of silver gray sheen with oil spots (0.25-inch wide) --	Medium --	Humic material with silt Humic material with silt

Table 2
Sheen Stir Test Notes - Cove Inlet Channel, Open Water Area, and Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Date	Time	Penetration Depth (inches)	Recovery (inches)	Sample Interval (inches)	Sheen Observed	Sheen Characterization	Qualitative Sheening Amount	Sediment Description
VA-30	4/4/2014	14:34	36	18	0-0.1	Yes	Patches/Streamers of rainbow sheen with 10 oil spots	Heavier	Brown silt, soft
					0.1-6	Yes	Patches/Streamers of rainbow sheen with 5 oil spots	Medium	Brown silt, roots, light sheen at 0-3"
VA-31	4/4/2014	14:50	36	13	0-0.1	Yes	Streamers of silver gray sheen with 1 oil spot	Lighter	Brown silt, very light sheen
					0.1-6	No	--	--	Humic material, rootlets
VA-32	4/4/2014	15:15	36	24	0-0.1	No	--	--	Humic material, rootlets
					0.1-6	No	--	--	Brown silt, minor sheet spot at 5"

Notes:

-- = not applicable or not measured

Table 3
Rating System for Overall Qualitative Sheening Amount

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Probing Result (Yes / No)	Sheen Test (No Sheen, Lighter, Medium, Heavier)	Overall Rating (No Sheen, Lighter, Medium, Heavier)
No	No Sheen	No Sheen
No	Lighter	Lighter
No	Medium	Medium
No	Heavier	Heavier
Yes ¹	No Sheen	Lighter
Yes ¹	Lighter	Lighter
Yes ¹	Medium	Medium
Yes ¹	Heavier	Heavier

Notes:

1. The sediment probing activities were conducted to primarily determine horizontal extent of sheen-bearing material. The probing results are considered for overall rating of the surface interval only (0 to 6 inches) because there is a potential for the sheen observed during the probing of the "deeper" interval to be a result of the sheen-bearing material in the "shallower" interval.

Table 4
Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sample Depth (inches)	Sheen Presence in Probing ¹	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
Cove Inlet Channel					
IC-1	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
IC-2	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Heavier	Heavier
	--	12-18	--	No Sheen	No Sheen
IC-3	No	0-6	Yes	No Sheen	Lighter
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
IC-4	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
IC-5	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
IC-6	No	0-6	Yes	Medium	Medium
	--	6-12	Yes ¹	No Sheen	No Sheen
IC-7	No	0-6	Yes	No Sheen	Lighter
	--	6-12	No	No Sheen	No Sheen
	--	12-15	--	No Sheen	No Sheen
IC-8	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Lighter	Lighter
	--	12-18	--	No Sheen	No Sheen
	--	18-24	--	No Sheen	No Sheen
IC-9	No	0-6	Yes	No Sheen	Lighter
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
IC-10	No	0-6	Yes	No Sheen	Lighter
	--	6-12	No	No Sheen	No Sheen
IC-11	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	Lighter	Lighter
	--	12-15	--	No Sheen	No Sheen
IC-12	No	0-6	Yes	Medium	Medium
	--	6-12	Yes ¹	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
	--	18-24	--	No Sheen	No Sheen
IC-13	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
IC-14	No	0-6	Yes	Lighter	Lighter
	--	6-12	Yes	Lighter	Lighter
	--	12-14	--	No Sheen	No Sheen
IC-15	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
	--	12-15	--	No Sheen	No Sheen

Table 4
Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sample Depth (inches)	Sheen Presence in Probing ¹	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
IC-16	Yes	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
	--	12-16	--	No Sheen	No Sheen
IC-17	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	Lighter	Lighter
	--	12-14	--	No Sheen	No Sheen
IC-18	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
IC-19	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
	--	12-16	--	No Sheen	No Sheen
IC-20	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
IC-21	No	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
	--	12-17	--	No Sheen	No Sheen
IC-22	Yes	0-6	Yes	Lighter	Lighter
	--	6-12	Yes	Lighter	Lighter
	--	12-15	--	Lighter	Lighter
	--	18-24	--	No Sheen	No Sheen
IC-23	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	Lighter	Lighter
	--	12-18	--	Lighter	Lighter
	--	18-22	--	No Sheen	No Sheen
IC-24	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
IC-25	No	0-6	Yes	No Sheen	Lighter
	--	6-12	No	No Sheen	No Sheen
	--	12-18	--	No Sheen	No Sheen
	--	18-22	--	No Sheen	No Sheen
Cove Open Water Area					
OW-1	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-2	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	Lighter	Lighter
OW-3	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	Lighter	Lighter
OW-4	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-5	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen

Table 4
Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sample Depth (inches)	Sheen Presence in Probing ¹	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
OW-6	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-7	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-8	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-9	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-10	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-11	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-12	Yes	0-6	No	No Sheen	No Sheen
	--	6-10	No	No Sheen	No Sheen
OW-13	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-14	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-15	No	0-6	Yes	Lighter	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-16	Yes	0-6	Yes	Medium	Medium
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-17 ³	No	0-6	No	No Sheen	No Sheen
	--	6-11	Yes	No Sheen	Lighter
OW-18	No	0-6	No	Heavier	Heavier
	--	6-12	No	Lighter	Lighter
OW-19	No	0-6	No	Medium	Medium
	--	6-12	No	No Sheen	No Sheen
OW-20	No	0-6	No	Heavier	Heavier
	--	6-11	No	No Sheen	No Sheen
OW-21	Yes	0-6	Yes	Medium	Medium
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-22	Yes	0-6	Yes	Lighter	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-23	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-24	No	0-6	Yes	Lighter	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-25	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-26	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-27	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen

Table 4
Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sample Depth (inches)	Sheen Presence in Probing ¹	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
OW-28	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-29	No	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-30	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-31	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-32	No	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-33	No	0-6	Yes	Medium	Medium
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-34	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Medium	Medium
OW-35	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-36	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-37	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-38	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	Medium	Medium
OW-39	No	0-6	Yes	Lighter	Lighter
	--	6-12	No	No Sheen	No Sheen
OW-40	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Medium	Medium
OW-41	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-42	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-43	No	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-44	Yes	0-6	No	No Sheen	No Sheen
	--	6-11	No	No Sheen	No Sheen
OW-45	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-46	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Heavier	Heavier
OW-47	Yes	0-6	Yes	Medium	Medium
	--	6-12	Yes	Lighter	Lighter
OW-48	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-49	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes ¹	No Sheen	No Sheen

Table 4
Summary of Pre-Design Study Activities - Cove Inlet Channel and Open Water Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sample Depth (inches)	Sheen Presence in Probing ¹	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
OW-50	Yes	0-6	Yes	Lighter	Lighter
	--	6-10	Yes ¹	No Sheen	No Sheen
OW-51	Yes	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Lighter	Lighter
OW-52	No	0-6	No	No Sheen	No Sheen
	--	6-11	No	No Sheen	No Sheen
OW-53	No	0-6	No	No Sheen	No Sheen
	--	6-10	No	No Sheen	No Sheen
OW-54	Yes	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-55	No	0-6	Yes	No Sheen	Lighter
	--	6-12	Yes ¹	No Sheen	No Sheen
OW-56	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-57	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-58	No	0-6	No	No Sheen	No Sheen
	--	6-9	No	No Sheen	No Sheen
OW-59	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-60	No	0-6	No	No Sheen	No Sheen
	--	6-10.5	No	No Sheen	No Sheen
OW-61	No	0-6	No	No Sheen	No Sheen
	--	6-12	No	No Sheen	No Sheen
OW-62	No	0-6	Yes	Heavier	Heavier
	--	6-12	Yes	Lighter	Lighter

Notes:

1. Sediment probing results are presented for 0 to 6 inches and 6 to 12 inches below sediment surface. As described in Table 3, subsurface probing results (below 6 inches) are not included in the overall qualitative sheening determination, unless otherwise stated.
2. The rating system for the overall qualitative sheening amount is provided in Table 3.
3. At OW-17, sheen was observed in the probing at the deeper interval (6-11 inches) and therefore, the overall qualitative sheening amount is lighter for that interval.

-- = not applicable

Table 5
Summary of Pre-Design Study Activities - Cove Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sheen Presence in Probing ¹	Sample Depth for Sheen Stir Test (inches)	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
VA-1	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-2	Yes	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-3	No Sheen	
VA-3	No	Yes	0-0.1	No Sheen	Lighter
	--	Yes	0.1-6	No Sheen	
VA-4	Yes	Yes	0-0.1	Lighter	Lighter
	--	Yes	0.1-6	No Sheen	
VA-5	No	No	0-0.1	No Sheen	Lighter
	--	Yes (6-12")	0.1-6	No Sheen	
VA-6	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-5	No Sheen	
VA-7	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-8	No	No	0-0.1	No Sheen	Lighter
	--	No	0.1-6	Lighter	
VA-9	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-10	Yes	Yes	0-0.1	Heavier	Heavier
	--	Yes	0.1-6	No Sheen	
VA-11	Yes	Yes	0-0.1	No Sheen	Lighter
	--	Yes	0.1-6	Medium	
VA-12	Yes	Yes	0-0.1	Lighter	Lighter
	--	Yes	0.1-6	No Sheen	
VA-13	Yes	Yes	0-0.1	Heavier	Heavier
	--	Yes	0.1-6	No Sheen	
VA-14	Yes	Yes	0-0.1	Lighter	Lighter
	--	Yes	0.1-6	No Sheen	
VA-15	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-16	Yes	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-4	No Sheen	
VA-17	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-18	Yes	Yes	0-0.1	Medium	Medium
	--	Yes	0.1-6	No Sheen	
VA-19	Yes	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-20	Yes	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-21	No	No	0-0.1	No Sheen	Lighter
	--	Yes	0.1-6	No Sheen	

Table 5
Summary of Pre-Design Study Activities - Cove Heavily Vegetated Area

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

Location ID	Surface Water Sheen	Sheen Presence in Probing ¹	Sample Depth for Sheen Stir Test (inches)	Qualitative Sheening Amount for Sheen Stir Test	Overall Qualitative Sheening Amount ²
VA-22	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-23	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-24	No	No	0-0.1	Heavier	Heavier
	--	Yes (6-12")	0.1-6	No Sheen	
VA-25	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-26	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-27	No	No	0-0.1	No Sheen	No Sheen
	--	No	0.1-6	No Sheen	
VA-28	No	Yes	0-0.1	Lighter	Lighter
	--	Yes	0.1-6	No Sheen	
VA-29	No	Yes	0-0.1	Medium	Medium
	--	Yes	0.1-6	No Sheen	
VA-30	No	No	0-0.1	Heavier	Heavier
	--	Yes (6-12")	0.1-6	Medium	
VA-31	Yes	Yes	0-0.1	Lighter	Lighter
	--	Yes	0.1-6	No Sheen	
VA-32	No	No	0-0.1	No Sheen	Lighter
	--	Yes (6-12")	0.1-6	No Sheen	
PA-1	No	No	--	--	No Sheen
PA-2	No	Yes	--	--	Lighter
PA-3	No	Yes	--	--	Lighter
PA-4	No	No	--	--	No Sheen
PA-5	No	No	--	--	No Sheen
PA-6	No	No	--	--	No Sheen
PA-7	No	No	--	--	No Sheen

Notes:

1. The sediment probing activities in the VA- locations were conducted in top 12 inches to determine horizontal extent of sheen-bearing material.
2. The rating system for the overall qualitative sheening amount is provided in Table 3.
3. Based on the actual coordinates, seven locations (PA-1 through PA-7) from the Cove Probing Area fell within the boundary of the Heavily Vegetated Area and therefore, these locations are considered as a part of the Heavily Vegetated Area. The probing activities were conducted in the top 1 inches of sediment for these locations.

-- = not applicable or probing/sheen stir test not conducted

Table 6
Cove Probing Area Field Notes

Downstream Areas Pre-Design Study
ExxonMobil Environmental Services Company
Mayflower Pipeline Incident Response, Mayflower, Arkansas

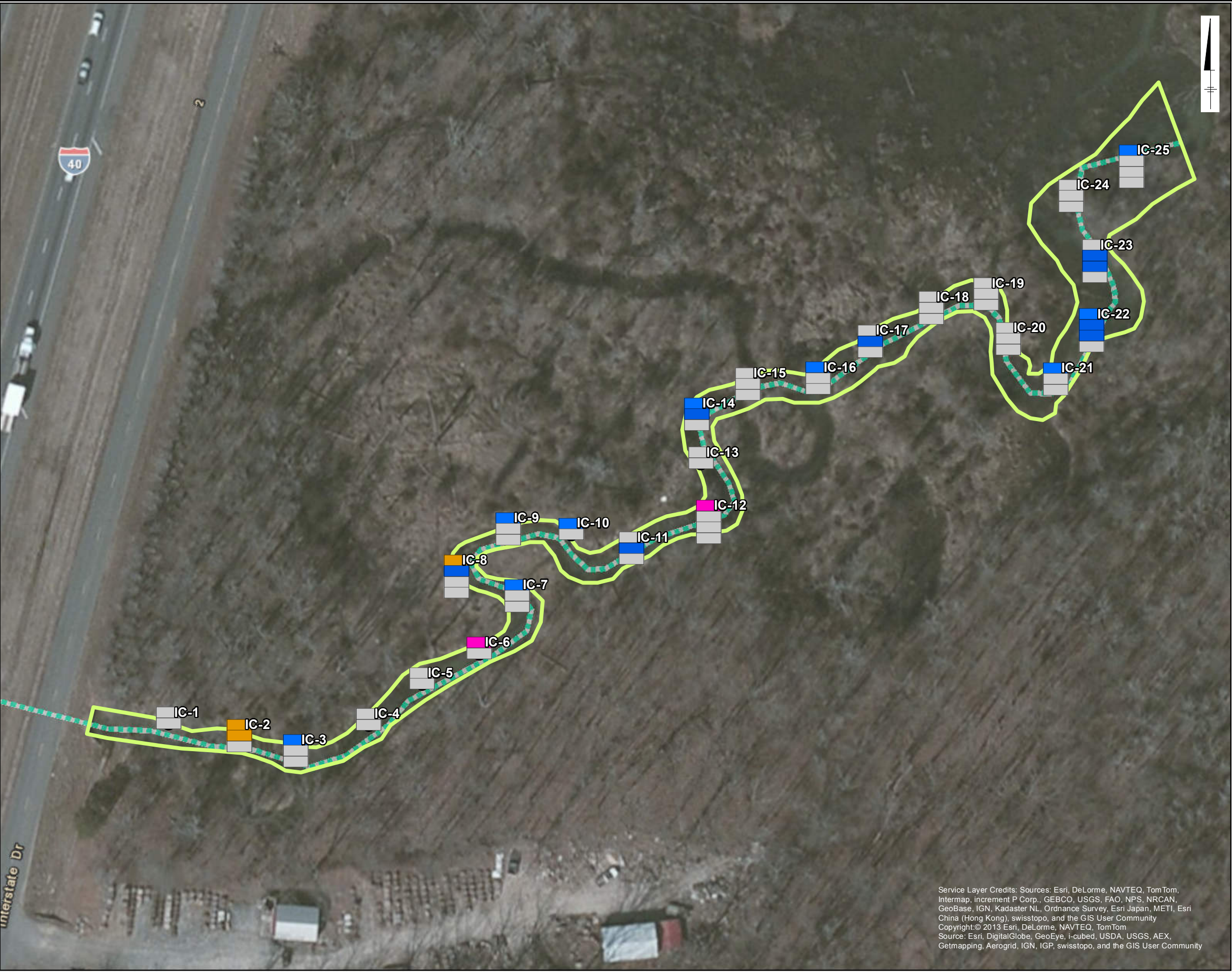
Location ID ¹	Date	Time	Water Depth (feet)	Probe Depth (inches)	Surface Water Sheen Observation	Probing Interval (inches)	Sheen Observed
PA-1	3/31/2014	10:53	1.5	1	--	0-1	No
PA-2	3/31/2014	14:16	1.3	1	--	0-1	Yes
PA-3	3/31/2014	14:45	1.3	1	--	0-1	Yes
PA-4	3/31/2014	11:01	2.1	1	--	0-1	No
PA-5	3/31/2014	11:44	0.7	1	--	0-1	No
PA-6	3/31/2014	14:24	1.9	1	--	0-1	No
PA-7	3/31/2014	15:03	0.3	1	--	0-1	No
PA-8	3/31/2014	11:11	1.0	1	--	0-1	No
PA-9	3/31/2014	14:13	0.8	1	--	0-1	No
PA-10	3/31/2014	14:36	1.0	1	--	0-1	No
PA-11	3/31/2014	10:46	0.9	1	--	0-1	No
PA-12	3/31/2014	11:41	2.0	1	--	0-1	No
PA-13	3/31/2014	14:29	1.7	1	--	0-1	No
PA-14	3/31/2014	11:14	2.2	1	--	0-1	No
PA-15	3/31/2014	14:11	2.3	1	--	0-1	No
PA-16	3/31/2014	10:42	1.0	1	--	0-1	No
PA-17	3/31/2014	11:39	2.0	1	--	0-1	No
PA-18	3/31/2014	14:32	1.1	1	--	0-1	No
PA-19	3/31/2014	10:14	0.2	1	--	0-1	No
PA-20	3/31/2014	11:17	2.7	1	--	0-1	No
PA-21	3/31/2014	14:07	1.1	1	--	0-1	No
PA-22	3/31/2014	10:08	0.3	1	--	0-1	No
PA-23	3/31/2014	10:38	2.8	1	--	0-1	No
PA-24	3/31/2014	11:36	2.3	1	--	0-1	No
PA-25	3/31/2014	10:20	2.5	1	--	0-1	No
PA-26	3/31/2014	11:20	2.9	1	--	0-1	No
PA-27	3/31/2014	14:05	1.4	1	--	0-1	No
PA-28	3/31/2014	10:00	4.5	1	--	0-1	No
PA-29	3/31/2014	10:36	3.8	1	--	0-1	No
PA-30	3/31/2014	11:33	1.5	1	--	0-1	No
PA-31	3/31/2014	10:25	3.5	1	--	0-1	No
PA-32	3/31/2014	11:23	4.0	1	--	0-1	No
PA-33	3/31/2014	9:51	3.3	1	--	0-1	No
PA-34	3/31/2014	10:33	1.0	1	--	0-1	No
PA-35	3/31/2014	11:30	1.2	1	--	0-1	No
PA-36	3/31/2014	10:28	2.2	1	--	0-1	No
PA-37	3/31/2014	11:26	0.8	1	--	0-1	No
PA-38	3/31/2014	9:42	4.8	1	--	0-1	No
PA-39	3/31/2014	13:57	1.6	1	--	0-1	No

Note:

1. Based on the actual coordinates, seven locations (PA-1 through PA-7) from the Cove Probing Area fell within the boundary of the Heavily Vegetated Area and therefore, these locations are considered as a part of Heavily Vegetated Area. The results are also included here for completeness.

-- = not applicable

Figures



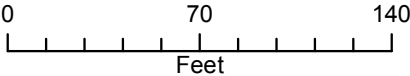
Legend

- Drainage Path
- Cove Inlet Channel

Relative Sheening Observed During Pre-Design Study

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen
- Sampling Depth 0-6 ft.
- Sampling Depth 6-12 ft
- Sampling Depth 12-18 ft*
- Sampling Depth 18-24 ft*
- * = Varies for some samples

NOTES:
1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014.
2. Figure shows overall qualitative sheen amount for each sample interval based on probing and/or sheen stir-test results.



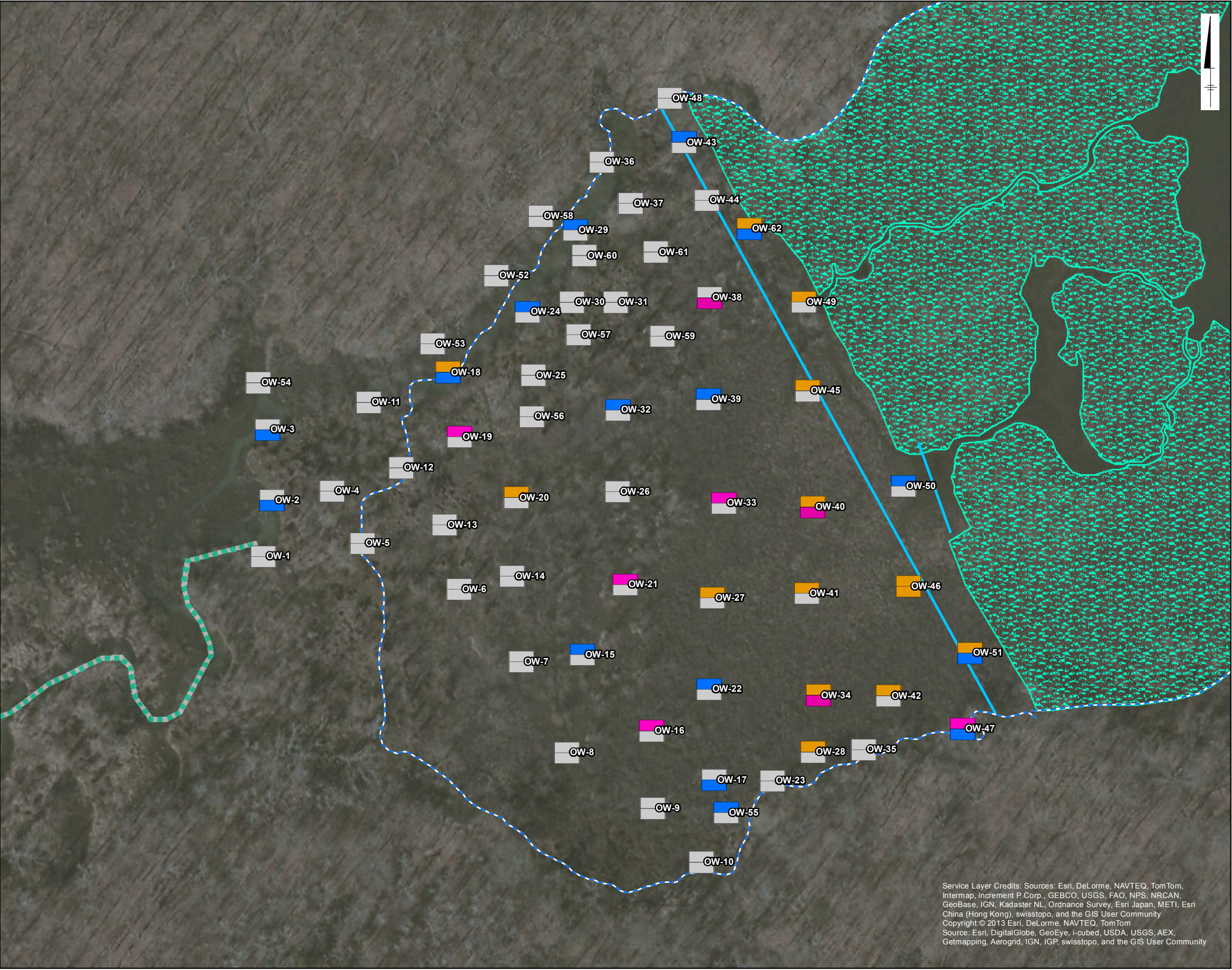
MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

COVE INLET CHANNEL
SAMPLING LOCATIONS

ARCADIS

FIGURE
1

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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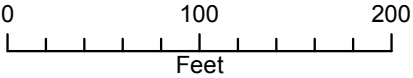
Legend

- Water's Edge
(At Time of Pre-Design study, April 2014)
- - - Drainage Path
- Containment Boom
- Areas with Heavy Vegetation

Relative Sheening Observed During Pre-Design Study

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen
- Sampling Depth 0-6 ft.
- Sampling Depth 6-12 ft.*
- * = Varies for some samples

NOTES:
1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014.
2. Figure shows overall qualitative sheen amount for each sample interval based on probing and/or sheen stir-test results.



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

COVE OPEN WATER AREA
SAMPLING LOCATIONS




FIGURE
2

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Legend

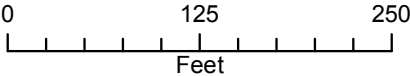
Relative Sheening Observed During Pre-Design Study

- No Sheen
- Lighter Sheen
- Medium Sheen
- Heavier Sheen
- Water's Edge
(At Time of Pre-Design Study, April 2014)
- Areas with Heavy Vegetation

NOTES:


1. Details regarding pre-design study activities are described in Appendix O of the DADAR (ARCADIS 2014). Pre-design study activities were completed between March 31 and April 9, 2014.

2. Figure shows overall qualitative sheen amount for each VA-location based on probing and/or sheen stir-test results. Figure shows amount of sheen for each PA- location based on probing results.



**MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY**

**COVE HEAVILY VEGETATED AREA AND
PROBING AREA SAMPLING LOCATIONS**

 **FIGURE 3**

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Photolog

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-3 inches : Light reddish brown silt with clay (MH)
3-12 inches : Gray silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-1



FIGURE
1

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Heavier
12-18 inches : No Sheen



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen



Probing Observation:

6-12 inches : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide)



Core Description:

0-10 inches : Gray silty humic material
10-18 inches : Gray and reddish brown clayey sand (SC)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-2



FIGURE
2

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Heavier
12-18 inches : No Sheen



Sheen Stir-Test:

0-6 inches : Cover of rainbow sheen
(Heavier)



Sheen Stir-Test:

6-12 inches : Cover of rainbow sheen
(Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-2 (continued)



FIGURE
3

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-18 inches : No Sheen



Probing Observation:

0-6 inches : Patches/streamers of non-brittle silver gray sheen



Core Description:

0-8 inches : Light brown silt (ML)
8-18 inches : Light brown silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-3



FIGURE
4

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-8 inches : Reddish brown silty clay (CL), soft
8-12 inches : Gray clayey sand (SC)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-4



FIGURE
5

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Gray humic material with clay, soft
6-9 inches : Coarse sand (SW)
9-12 inches : Gray clayey sand

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-5



FIGURE
6

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen



Probing Observation:

0-6 inches : Patches of non-brittle silver gray sheen
6-12 inches : Patches of non-brittle silver gray sheen



Core Description:

0-3 inches : Gray silt with humic material
3-12 inches : Light reddish brown and gray mottled silty sand (SM), very firm sand



Sheen Stir-Test:

0-6 inches : Streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-6

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-15 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-15 inches : No Sheen

No Photo

Probing Observation:

0-6 inches : Patch of non-brittle silver gray sheen (light sheen to capture in the photograph)



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-7



FIGURE

8

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-18 inches : No
18-24 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter
12-18 inches : No Sheen
18-24 inches : No Sheen



Probing Observation:

0-6 inches : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide)
6-12 inches : Patches/streamers of non-brittle silver gray sheen with oil spots (<0.25-inch wide)



Core Description:

0-20 inches : Gray silty clay (CL) with humic material, soft
20-24 inches : Gray clayey silt (MH)



Sheen Stir-Test:

0-6 inches : Cover of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-8

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-18 inches : No
18-24 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter
12-18 inches : No Sheen
18-24 inches : No Sheen



Sheen Stir-Test:

6-12 inches : Patch of silver gray sheen
(Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-8 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-18 inches : No Sheen

No Photo

Probing Observation:

0-6 inches : Patches of non-brittle silver gray sheen (quickly dissipated before capturing in the photograph)



Core Description:

0-14 inches : Coarse sand (SW) with humic material
14-18 inches : Black wood

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-9



FIGURE
11

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

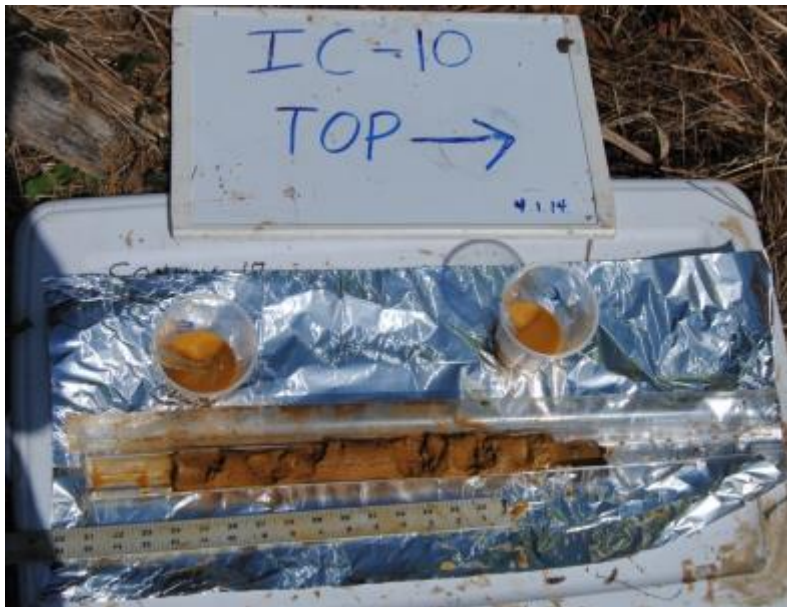
Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Observation:

0-6 inches : Patch of non-brittle silver gray sheen (quickly dissipated before capturing in the photograph)



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-10



FIGURE
12

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes
12-15 inches : No

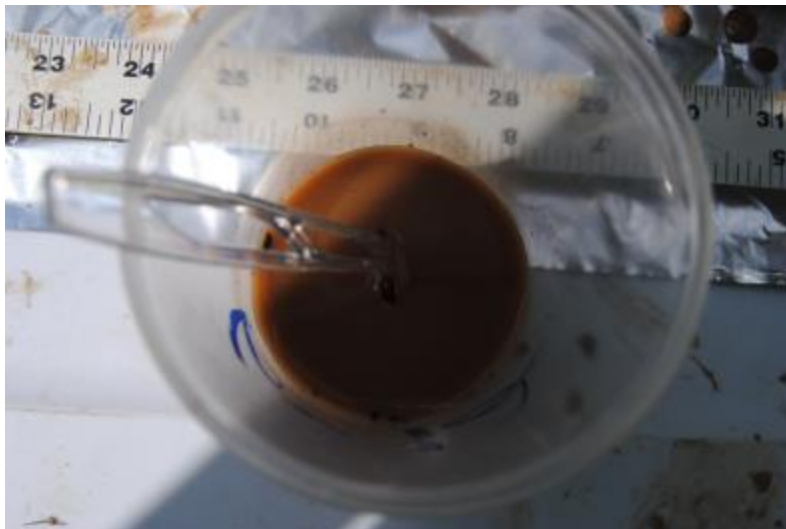
Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter
12-15 inches : No Sheen



Core Description:

0-12 inches : Reddish brown silty clay (CL), soft
12-15 inches : Silty clay with woody material



Sheen Stir-Test:

6-12 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-11



FIGURE
13

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No
12-18 inches : No
18-24 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen
12-18 inches : No Sheen
18-24 inches : No Sheen

No Photo

Probing Observation:

0-6 inches : Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated before capturing in the photograph)
6-12 inches : Patches of non-brittle silver gray sheen with 0.25-inch wide oil spot (quickly dissipated before capturing in the photograph)



Core Description:

0-24 inches : Gray silty clay with humic material



Sheen Stir-Test:

0-6 inches : Streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-12



FIGURE
14

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Patches of brittle silver gray sheen



Core Description:

0-12 inches : Gray clayey silt (MH) with humic material at 0-5"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-13



FIGURE
15

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-14 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : Lighter
12-14 inches : No Sheen



Probing Observation:

0-6 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)
6-12 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)



Core Description:

0-14 inches : Gray and reddish brown silty clay (CL), soft



Sheen Stir-Test:

0-6 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-14

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-14 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : Lighter
12-14 inches : No Sheen



Sheen Stir-Test:

6-12 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-14 (continued)



FIGURE
17

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-15 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen
12-15 inches : No Sheen



Core Description:

0-10 inches : Gray silty clay with humic material
10-15 inches : Light brown silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-15

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-16 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-16 inches : No Sheen



Initial Observation:

Cover of brittle silver gray sheen



Probing Observation:

0-6 inches : Streamers (< 2 inches) of non-brittle silver gray sheen
6-12 inches : Streamers (< 2 inches) of non-brittle silver gray sheen



Core Description:

0-16 inches : Gray and reddish brown silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-16

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes
12-14 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter
12-14 inches : No Sheen



Core Description:

No description



Sheen Stir-Test:

6-12 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-17

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen
12-18 inches : No Sheen



Core Description:

0-6 inches : Gray silty clay with humic material, soft
6-17 inches : Reddish brown silty sand (SM)
17-28 inches : Gray clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-18



FIGURE
21

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-16 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen
12-16 inches : No Sheen



Core Description:

0-4 inches : Gray clayey silt (MH), soft
4-10 inches : Reddish brown silty sand (SM)
10-16 inches : Gray silt with clay (MH) and humic material, wood at 13"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-19

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen
12-18 inches : No Sheen



Core Description:

0-12 inches : Light brown and red mottled clayey silt (MH)
12-18 inches : Gray clayey sand (SC)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-20

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-17 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-17 inches : No Sheen



Probing Observation:

0-6 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)
6-12 inches : Patches/streamers of non-brittle silver gray sheen (quickly dissipated)



Core Description:

0-3 inches : Gray humic material with silty clay
3-15 inches : Light reddish brown clayey sand (SC)
15-17 inches : Gray silty clay with humic material

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-21



FIGURE
24

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-15 inches : Yes
18-24 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : Lighter
12-15 inches : Lighter
18-24 inches : No Sheen



Initial Observation:

Cover of brittle rainbow sheen



Core Description:

0-12 inches : Gray silty clay with humic material
12-24 inches : Light brown clayey silt



Sheen Stir-Test:

0-6 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-22

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes
12-15 inches : Yes
18-24 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : Lighter
12-15 inches : Lighter
18-24 inches : No Sheen



Sheen Stir-Test:

6-12 inches : Streamer of silver gray sheen (Lighter)



Sheen Stir-Test:

12-15 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-22 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes
12-18 inches : Yes
18-22 inches : No

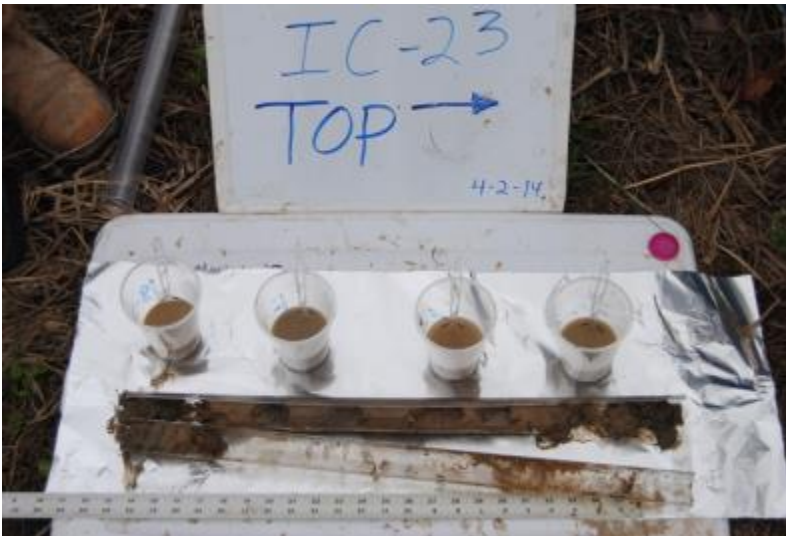
Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter
12-18 inches : Lighter
18-22 inches : No Sheen



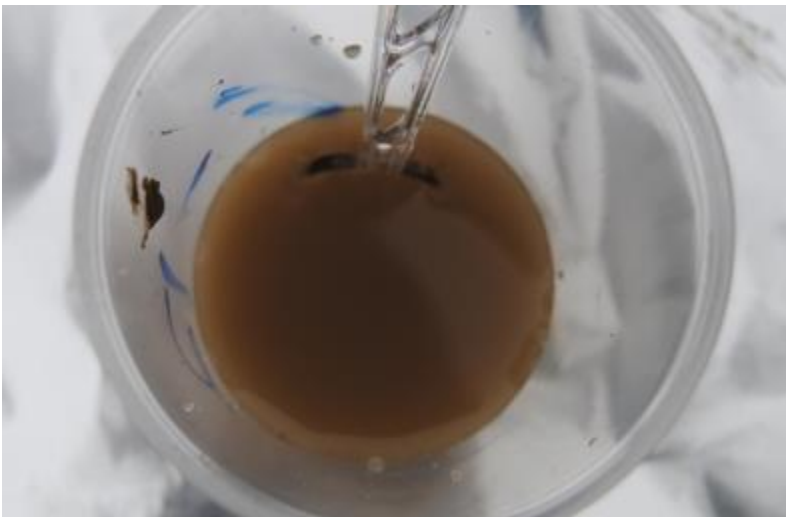
Initial Observation:

Cover of non-brittle rainbow sheen



Core Description:

0-12 inches : Gray silty clay with humic material, soft
12-22 inches : Light brown silt with clay



Sheen Stir-Test:

6-12 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-23

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes
12-18 inches : Yes
18-22 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter
12-18 inches : Lighter
18-22 inches : No Sheen



Sheen Stir-Test:

12-18 inches : Streamer of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-23 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen
12-18 inches : No Sheen



Core Description:

0-12 inches : Light brown clayey silt (MH)
12-18 inches : Light brown clayey sand (SC)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-24



FIGURE
29

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No
12-18 inches : No
18-22 inches : No

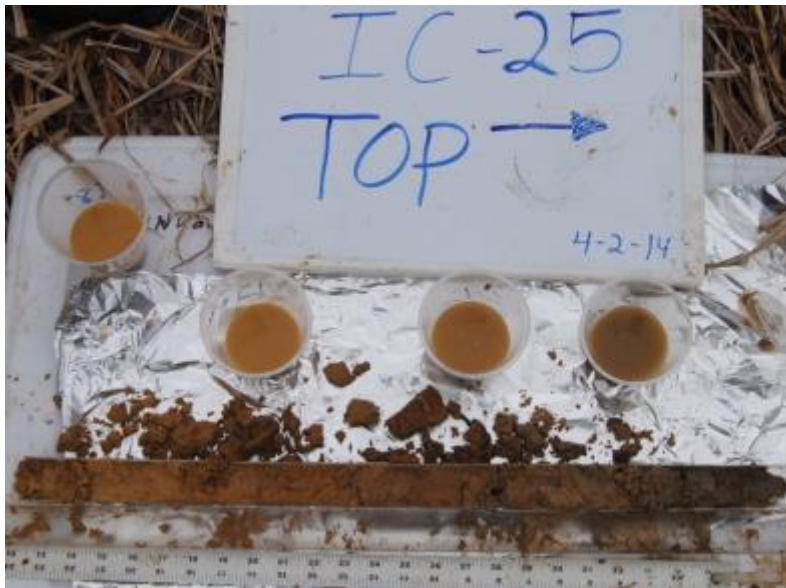
Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen
12-18 inches : No Sheen
18-22 inches : No Sheen

No Photo

Probing Observation:

Surface : Patches of non-brittle silver gray sheen with one oil spot (<0.25-inch wide; quickly dissipated before capturing in the photograph)



Core Description:

0-6 inches : Gray silt (ML)
6-22 inches : Light brown and reddish brown mottled silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Inlet Channel
Location – IC-25



FIGURE
30

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Patches of brittle silver gray sheen



Core Description:

0-12 inches : Light brown and reddish mottled silt with clay (MH), humic material at 0-2"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-1



FIGURE

31

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter



Core Description:

0-12 inches : Gray and reddish brown mottled silt with clay (MH)



Sheen Stir-Test:

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-2

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Lighter



Initial Observation:

Cover of brittle and non-brittle silver gray sheen



Core Description:

0-12 inches : Gray and reddish brown mottled clayey silt (MH)



Sheen Stir-Test:

6-12 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-3

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-12 inches : Light brown and reddish brown mottled silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-4



FIGURE
34

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Light brown and reddish brown mottled silt with clay, some humic material at 0-2"
6-12 inches : Gray and light brown mottled silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-5

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Cover of brittle silver gray sheen



Core Description:

0-10 inches : Gray and reddish brown clayey silt (MH), humic material at 0-2"
10-12 inches : Light brown and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-6



FIGURE
36

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-8 inches : Gray silty clay (CL) with roots and organic material
8-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-7

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Brown clayey silt with roots
6-12 inches : Brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-8

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-8 inches : Brown clay, some silt, soft
8-12 inches : Brown clay, stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-9

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Cover of brittle silver gray sheen



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-10



FIGURE
40

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Cover of brittle silver gray sheen



Core Description:

0-6 inches : Gray silt with clay (MH), roots, humic material
6-12 inches : Light brown and reddish silt (ML)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-11



FIGURE

41

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-10 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-10 inches : No Sheen



Initial Observation:

Patches of brittle silver gray sheen



Core Description:

0-10 inches : Gray and reddish brown mottled silt with clay (MH); organic material (roots and grass) at 0-2"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-12



FIGURE
42

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Brown silty clay
6-12 inches : Brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-13



FIGURE
43

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-12 inches : Brown clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-14

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Observation:

0-6 inches : Streamers of non-brittle silver gray (quickly dissipated before capturing in the photograph)
6-12 inches : Streamers of non-brittle silver gray (quickly dissipated before capturing in the photograph)

Core Description:

0-6 inches : Brown silty clay, soft, very light sheen at 0-5"
6-12 inches : Brown clay, medium stiff



Sheen Stir-Test:

0-6 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-15

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen

No Photo

Initial Observation:

Patches/streamers of non-brittle silver gray (very light to capture in the photograph)

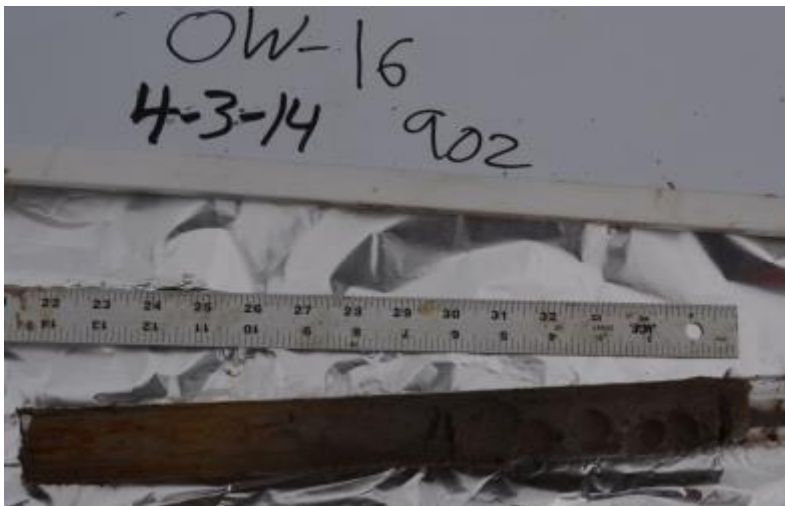
No Photo

Probing Observation:

Surface : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)
0-6 inches : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)
6-12 inches : Patches/streamers of non-brittle silver gray (very small to capture in the photograph)

Core Description:

0-6 inches : Brown silty clay, very light sheen at 0-4"
6-12 inches : Red brown clay, stiff



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-16



FIGURE
46

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with 10 oil spots (0.1- to 0.25-inch wide) (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-16 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

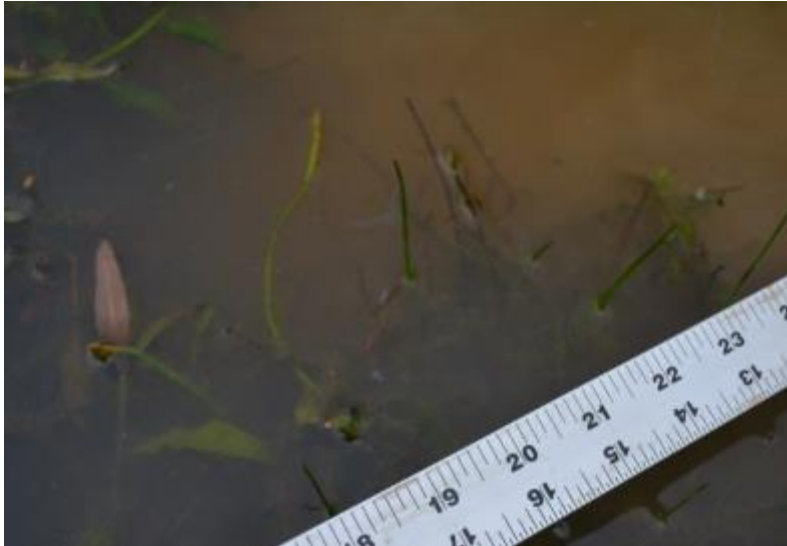
Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-11 inches : No

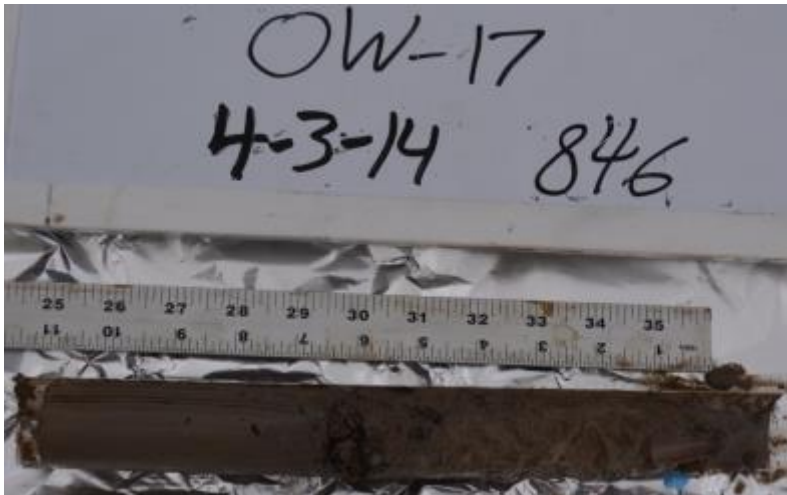
Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-11 inches : Lighter



Probing Observation:

6-12 inches : Streamers of non-brittle silver gray sheen



Core Description:

0-6 inches : Brown silt, very little sheen at 0-2.4"
0-11 inches : Brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-17



FIGURE
48

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter



Core Description:

0-3 inches : Gray silty clay (CL), soft
3-10 inches : Gray and reddish brown clayey silt (MH)
10-12 inches : Gray silty clay (CL)



Sheen Stir-Test:

0-6 inches : Streamer of rainbow sheen (Heavier)



Sheen Stir-Test:

6-12 inches : Patch of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-18

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen



Core Description:

0-12 inches : Gray and reddish brown silt with clay (MH), roots and plant material at 0-2"



Sheen Stir-Test:

0-6 inches : Patches of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-19

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-11 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-11 inches : No Sheen



Core Description:

0-6 inches : Brown silt, soft, light sheen 0-5"
6-11 inches : Reddish brown clay, soft



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-20



FIGURE
51

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen

No Photo

Initial Observation:

Patches of non-brittle silver gray sheen



Probing Observation:

Surface : Streamers of non-brittle silver gray sheen
0-6 inches : Streamers of non-brittle silver gray sheen



Probing Observation:

6-12 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (0.1 to 0.25-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-21

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen



Core Description:

0-6 inches : Brown silt, light sheen 0-4"
6-12 inches : Red brown clay, soft



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-21 (continued)



FIGURE
53

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

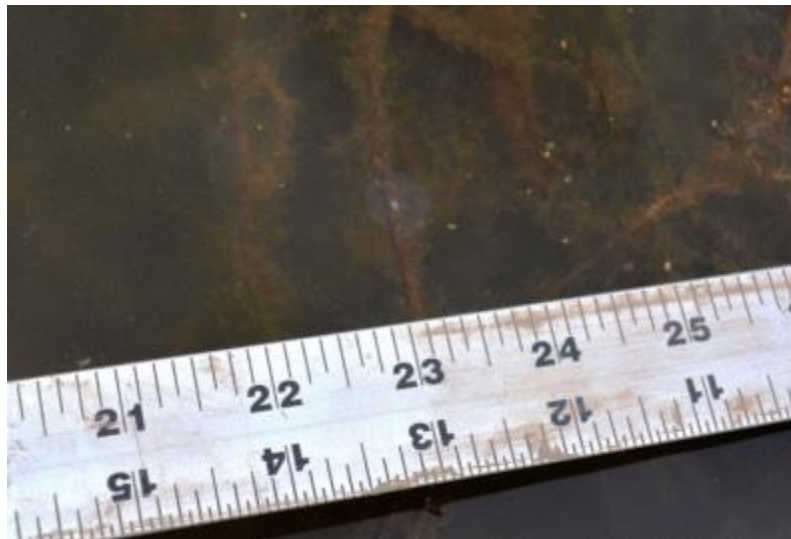
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen



Initial Observation:

Patches/streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen with three oil spots (0.1-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen with 0.1-inch wide oil spots



Probing Observation:

6-12 inches : Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-22

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

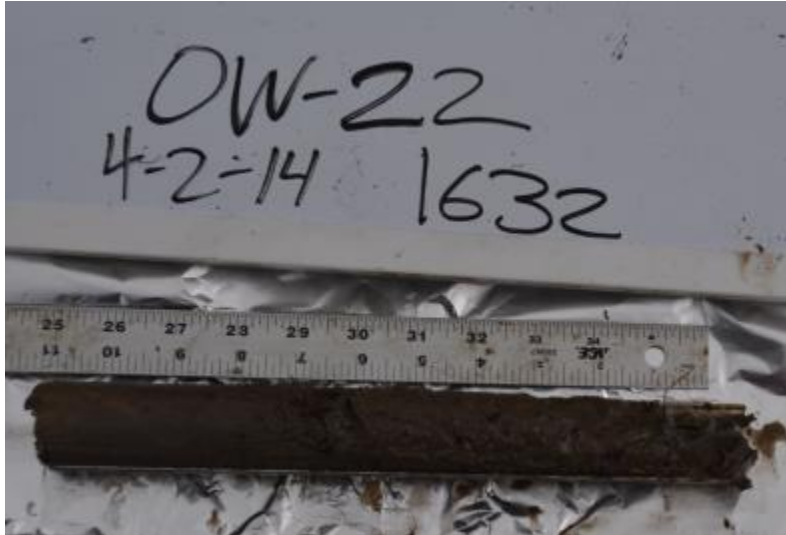
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen



Core Description:

0-6 inches : Brown silt, very light sheen at 0-2.4"
6-12 inches : Brown clay, stiff



Sheen Stir-Test:

0-6 inches : Patches/streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-22 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Streamers of brittle and non-brittle silver gray sheen



Core Description:

0-6 inches : Gray and reddish brown silt with clay (MH)
6-12 inches : Light brown and reddish brown mottled silt with clay (MH), soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-23



FIGURE
56

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Description:

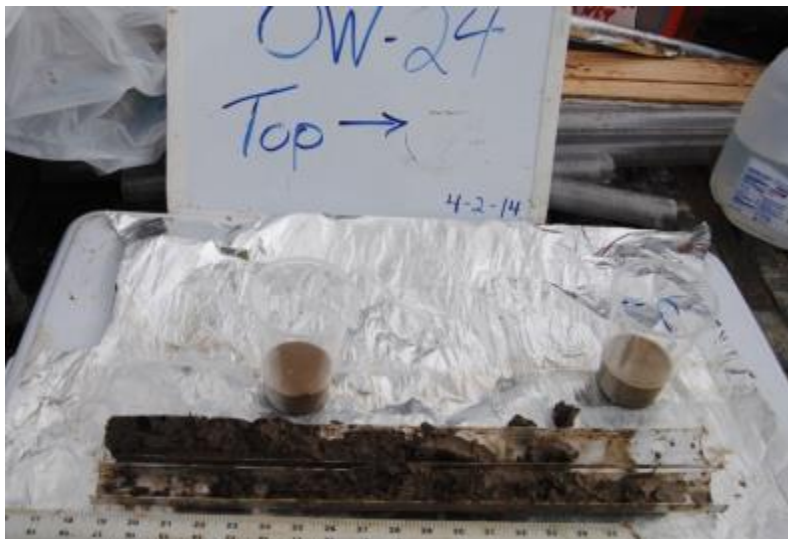
0-6 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.13-inch wide; quickly dissipated before capturing in the photograph)
6-12 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.13-inch wide; quickly dissipated before capturing in the photograph)

Core Description:

0-12 inches : Gray and reddish brown mottled clayey silt (MH) with roots and plan material

Sheen Stir-Test:

0-6 inches : Streamer of silver gray sheen (Lighter)



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-24

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-25

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Brown silt, rootlets
6-12 inches : Red brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-26



FIGURE
59

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

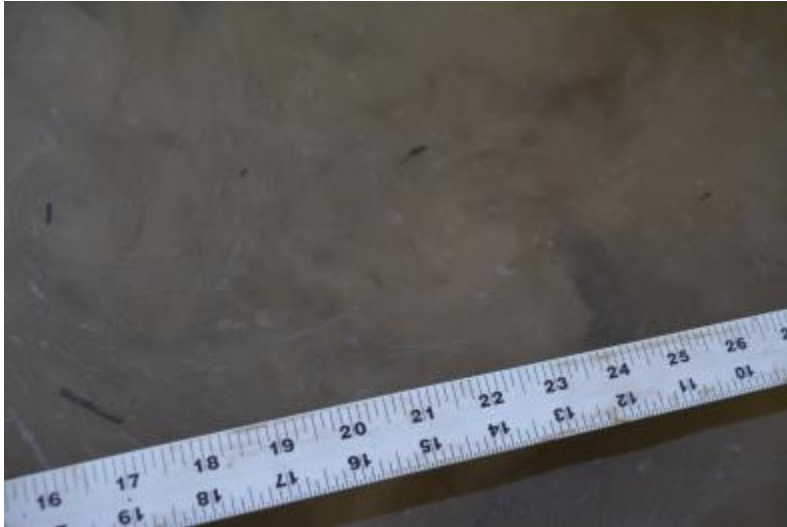
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

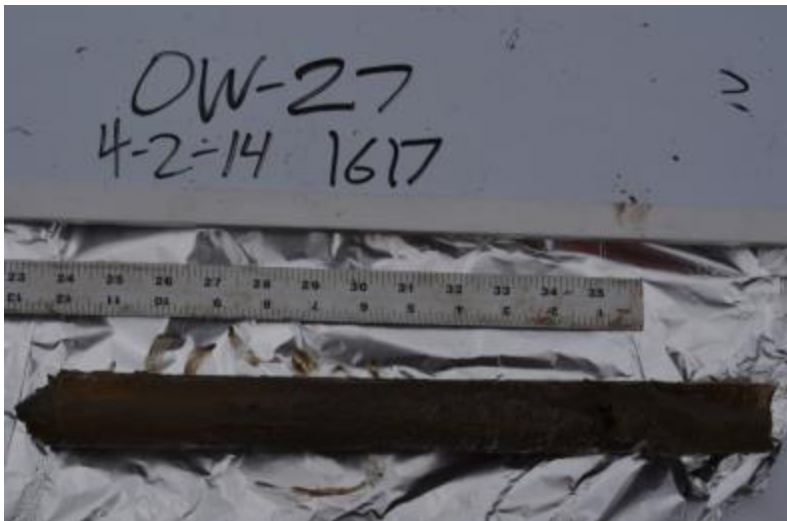
Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Probing Description:

Surface : Patches/streamers of non-brittle silver gray sheen with 10 oil spots (0.1-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen



Core Description:

0-6 inches : Brown clayey silt, very light sheen at 0-2.4"
12 inches : Brown clay, soft



Sheen Stir-Test:

0-6 inches : Patches/streamers of silver gray sheen with 0.25-inch wide oil spot (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-27

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

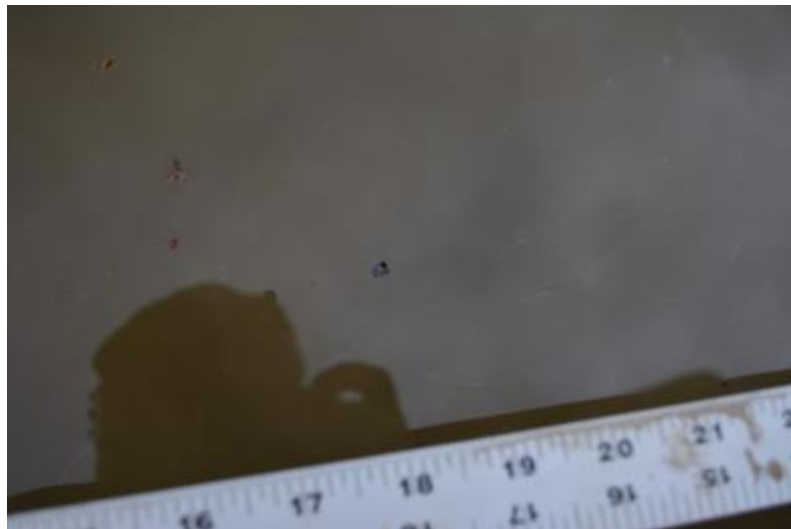
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Probing Description:

Surface : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot
0-6 inches : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot
6-12 inches : Patches/streamers of non-brittle silver gray sheen with 0.25-inch wide oil spot



Core Description:

0-6 inches : Silty clay, light sheen at 0-2.4"
6-12 inches : Reddish brown clay, stiff



Sheen Stir-Test:

0-6 inches : Patches/streamers of silver gray sheen with three oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-28

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Description:

0-6 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)
6-12 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)

Core Description:

0-12 inches : Gray and reddish brown silt with clay



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-29



FIGURE
62

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-5 inches : Gray silty clay (CL) with humic material, soft
5-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-30



FIGURE
63

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-31



FIGURE
64

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Description:

0-6 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)
6-12 inches : Patches of non-brittle silver gray sheen (light sheen; quickly dissipated before capturing in the photograph)

Core Description:

No description



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-32



FIGURE
65

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

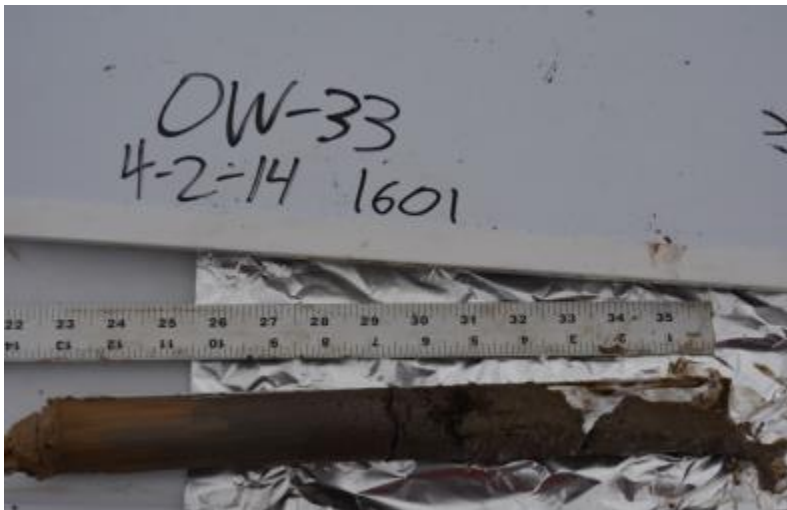
Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : No Sheen



Probing Description:

Surface : Patches/streamers of silver gray sheen
0-6 inches : Patches/streamers of silver gray sheen
6-12 inches : Patches/streamers of silver gray sheen



Core Description:

0-6 inches : Silty humic material, light sheen
6-12 inches : Brown silty clay to clay



Sheen Stir-Test:

0-6 inches : Patches/streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-33

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Medium



Initial Observation:

Patch/streamer of non-brittle silver gray sheen



Probing Observation:

Surface : Patch/streamer of non-brittle silver gray sheen
0-6 inches : Patch/streamer of non-brittle silver gray sheen with four oil spots (0.1-inch wide)
6-12 inches : Patch/streamer of non-brittle silver gray sheen

No Photo

Core Description:

0-6 inches : Silt with humic material, light sheen at 0-6"
6-12 inches : Clayey silt, light sheen at 6-10"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-34

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Medium

No Photo

Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

No Photo

Sheen Stir-Test:

6-12 inches : Patches/streamers of rainbow sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-34 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

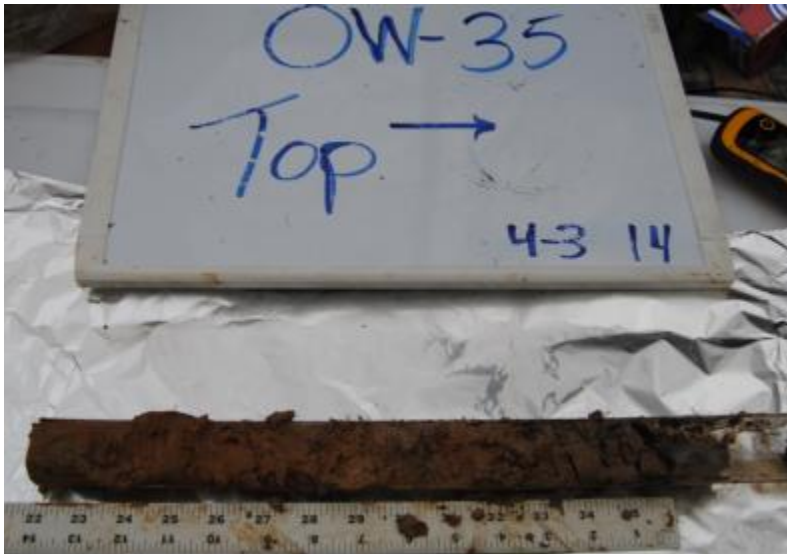
Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Cover/patches of brittle silver gray sheen



Core Description:

0-7 inches : Gray and reddish brown silt with clay (MH)
7-12 inches : Light brown and reddish brown clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-35



FIGURE
69

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-4 inches : Gray silty clay (CL) with humic material, soft
4-12 inches : Light brown and reddish brown mottled silty clay (CL)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-36



FIGURE
70

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

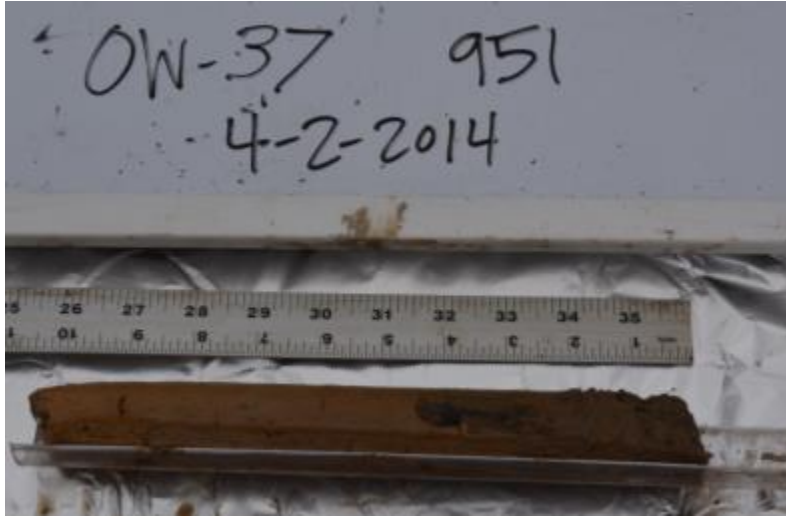
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-6 inches : Reddish brown silty clay
6-12 inches : Red clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-37

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : Medium



Core Description:

0-6 inches : Brown clay
6-12 inches : Brown silty clay



Sheen Stir-Test:

6-12 inches : Patches/streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-38



FIGURE
72

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen

No Photo

Probing Description:

Surface : Patches/streamers of non-brittle silver gray
0-6 inches : Patches/streamers of non-brittle silver gray

Core Description:

0-6 inches : Brown silty clay, algae 0-2.4"
6-12 inches : Reddish brown clay, soft



Sheen Stir-Test:

0-6 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-39



FIGURE
73

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Medium



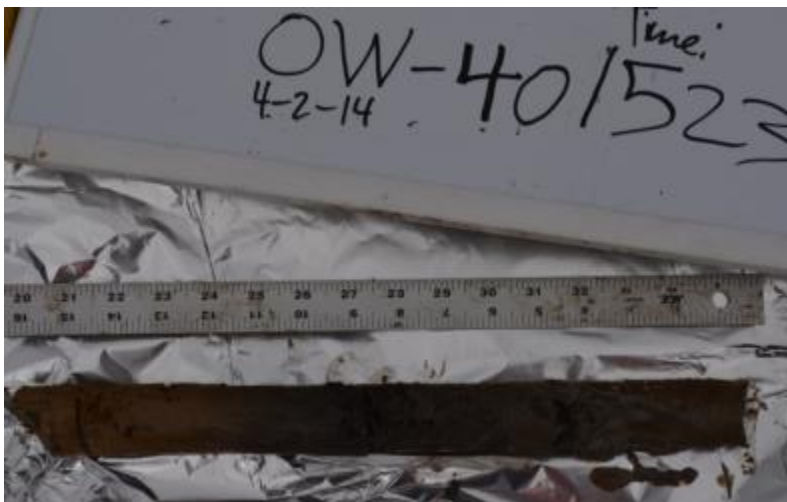
Probing Description:

0-6 inches : Patches/streamers of silver gray sheen with one oil spot (0.25-inch wide)

No Photo

Probing Description:

6-12 inches : Streamers of silver gray sheen



Core Description:

0-6 inches : Silty clay, some roots at 5-6",
very light sheen at 0-2.4"
6-12 inches : Red brown clay, medium stiff

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-40

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Medium



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with 20 oil spots (Heavier)



Sheen Stir-Test:

6-12 inches : Streamers of silver gray sheen with oil spot (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-40 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen

No Photo

Initial Observation:

Streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)

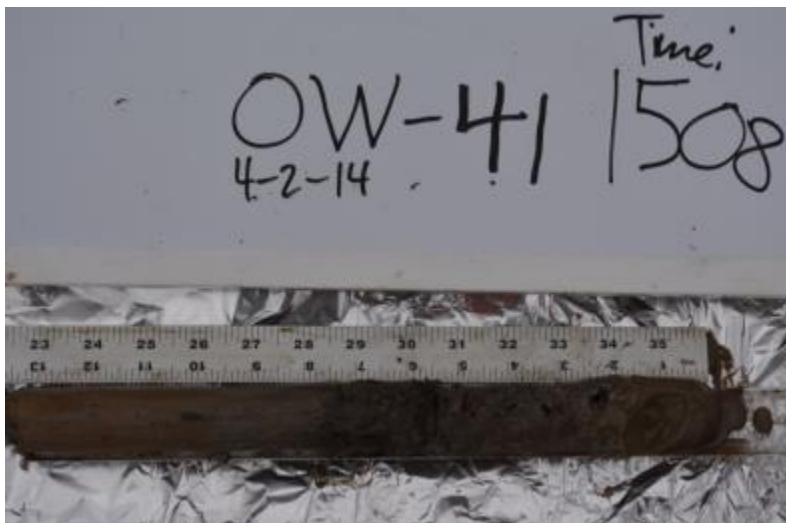
No Photo

Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)
0-6 inches : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)
6-12 inches : Patches/streamers of non-brittle silver gray sheen (very light sheen to capture in the photograph)

Core Description:

0-6 inches : Brown silt, very light sheen at 0-2.4"
6-12 inches : Reddish brown clay, soft



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-41



FIGURE
76

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-41 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

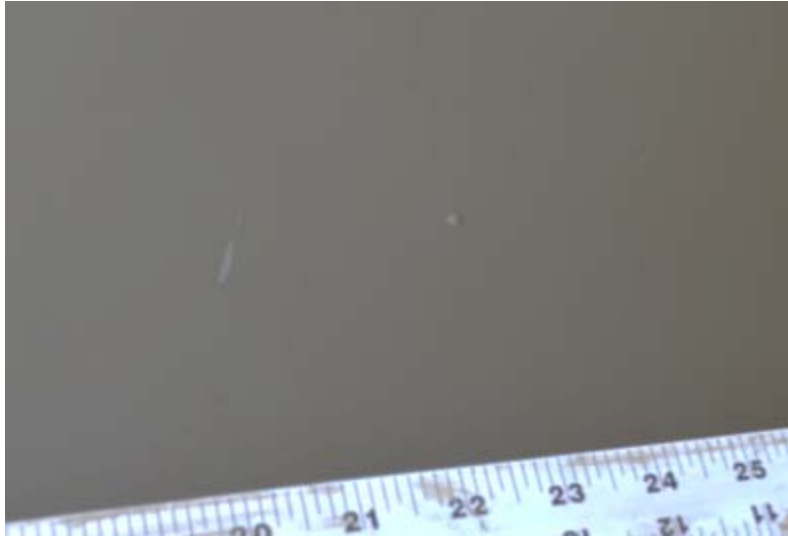
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

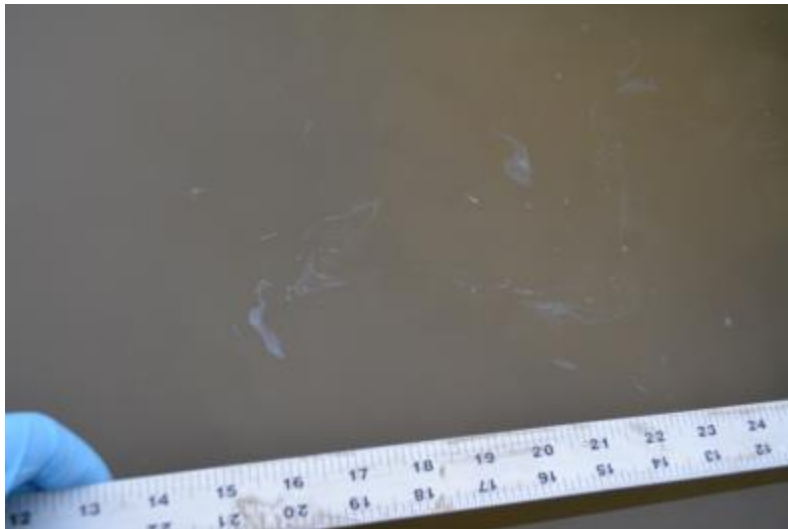
Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Initial Observation:

Patches of non-brittle silver gray sheen



Probing Observation:

Surface : Patch/streamer of non-brittle silver gray sheen
0-6 inches : Patch/streamer of non-brittle silver gray sheen
6-12 inches : Patch/streamer of non-brittle silver gray sheen



Core Description:

0-6 inches : Brown silt, humic material at 3", light sheen at 0-6"
6-12 inches : Brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-42

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-42 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

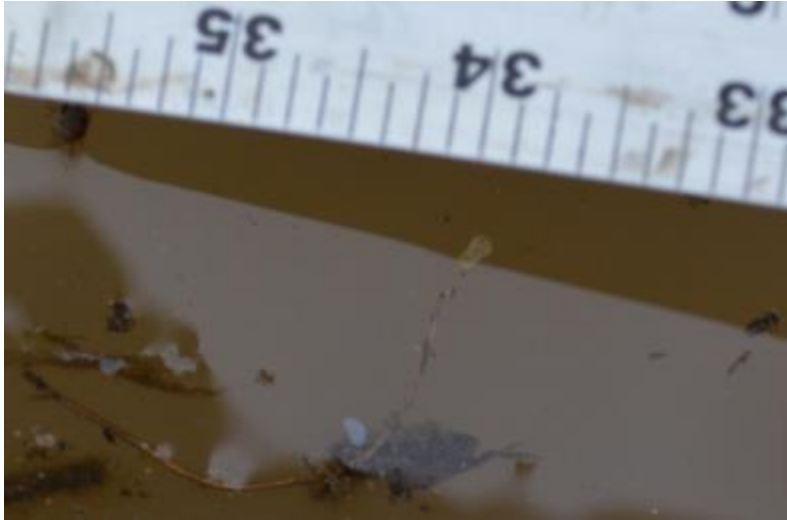
Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen



Probing Description:

0-6 inches : Patch of silver gray sheen
6-12 inches : Patch of silver gray sheen



Core Description:

0-6 inches : Gray brown clayey silt with rootlets
6-12 inches : Dark brown clayey silt with rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-43



FIGURE
80

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

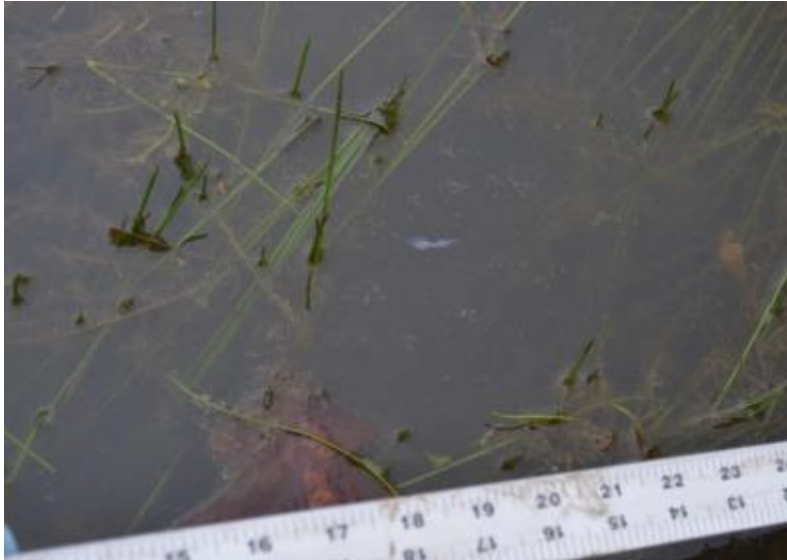
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-11 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-11 inches : No Sheen



Initial Observation:

Streamers of non-brittle silver gray sheen



Core Description:

0-6 inches : Brown clay
6-11 inches : Red brown clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-44



FIGURE

81

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



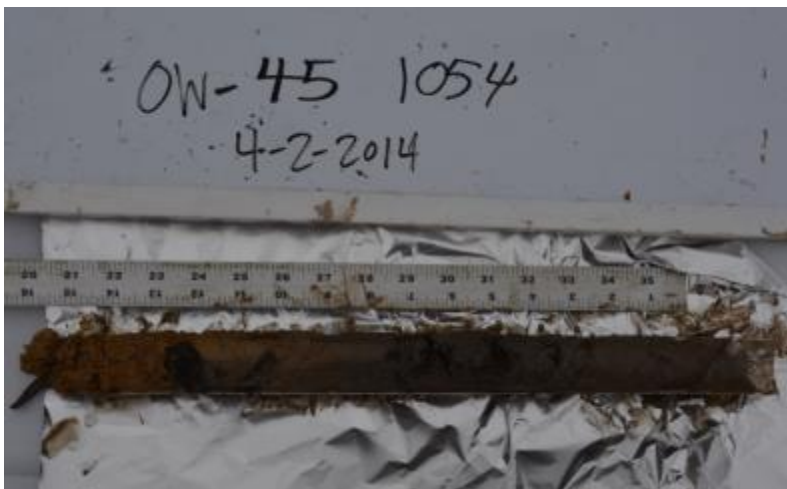
Initial Observation:

Patches/streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle rainbow sheen (heavy sheen)



Core Description:

0-6 inches : Brown silt with rootlets, medium sheen at 0-4"
6-12 inches : Red silty clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-45

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-45 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Heavier



Initial Observation:

Patches (four to five) of non-brittle silver gray sheen



Probing Observation:

Surface : Streamers of non-brittle silver gray sheen
0-6 inches : Streamers of non-brittle silver gray sheen
6-12 inches : Streamers of non-brittle silver gray sheen



Core Description:

0-6 inches : Brown silt, medium sheen at 0-5"
6-12 inches : Brown silty clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-46

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Heavier



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)



Sheen Stir-Test:

6-12 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-46 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : Lighter



Initial Observation:

Streamers of non-brittle rainbow sheen

No Photo

Probing Observation:

Surface : Patches of non-brittle silver gray sheen
0-6 inches : Patches of non-brittle silver gray sheen
6-12 inches : Patches of non-brittle silver gray sheen



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-47

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Medium
6-12 inches : Lighter



Sheen Stir-Test:

0-6 inches : Streamers of silver gray sheen (Medium)



Sheen Stir-Test:

6-12 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-47 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Patches/streamers of non-brittle silver gray sheen with oil spot (<0.25-inch wide)



Core Description:

0-12 inches : Gray and reddish brown mottled silt with clay (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-48



FIGURE
88

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

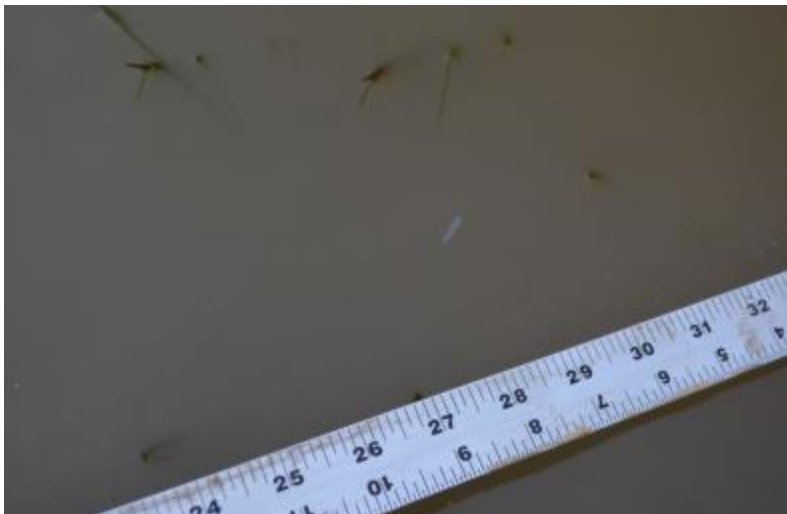
Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Initial Observation:

Streamers of non-brittle rainbow sheen with eight oil spots (<0.25-inch wide)



Probing Observation:

Surface : Patches of non-brittle silver gray sheen
0-6 inches : Patches of non-brittle silver gray sheen



Probing Observation:

6-12 inches : Streamers of non-brittle silver gray sheen

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-49



FIGURE
89

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : No Sheen



Core Description:

0-6 inches : Humic material, visible sheen at 0-5"
6-12 inches : Brown silty clay, roots



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with five oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-49 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-10 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-10 inches : No Sheen

No Photo

Initial Observation:

Streamers of non-brittle rainbow sheen with about 100 oil spots (0.25 to 0.5-inch wide)

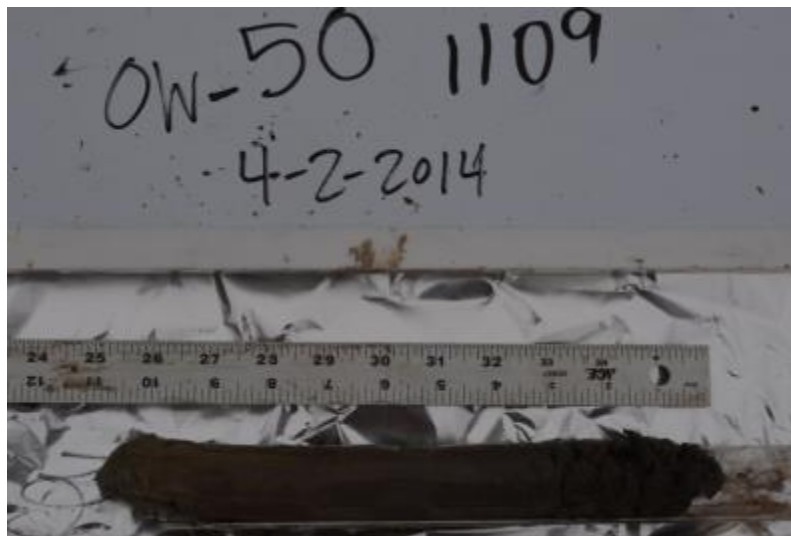
No Photo

Probing Observation:

Surface : Streamers of non-brittle silver gray sheen with five oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)
0-6 inches : Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)
6-12 inches : Streamers of non-brittle silver gray sheen with oil spots (0.25-inch wide; sheen from other areas moved in quickly before taking a photograph)

Core Description:

0-6 inches : Humic material, light sheen at 0-4"
6-10 inches : Brown clay



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-50



FIGURE
91

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes

0-6 inches : Yes

6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes

6-10 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter

6-10 inches : No Sheen

No Photo

Sheen Stir-Test:

0-6 inches : Patches of silver gray sheen
(Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-50 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter



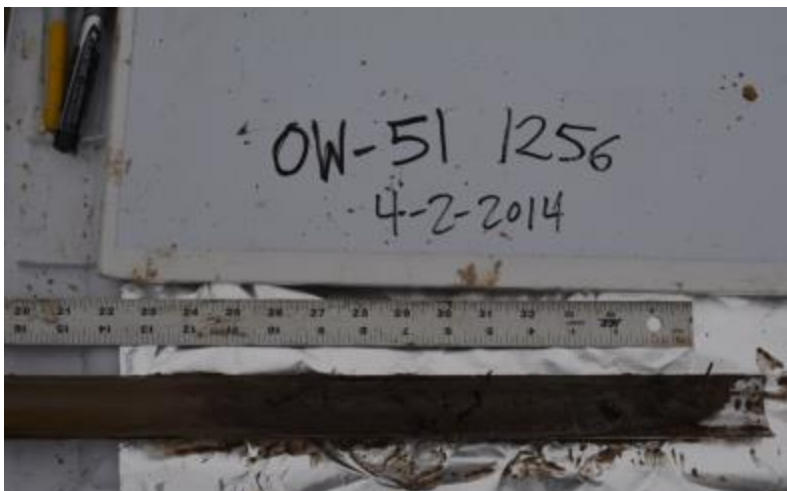
Initial Observation:

Patch/streamer of non-brittle rainbow sheen with about 100 oil spots



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen with two oil spots (<0.25-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (<0.25-inch wide)
6-12 inches : Patches/streamers of non-brittle silver gray sheen with five oil spots (0.1-inch wide)



Core Description:

0-6 inches : Brown silt, twigs, odor of benzene, medium sheen at 0-4"
6-12 inches : Brown clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-51

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter



Sheen Stir-Test:

0-6 inches : Patches/streamers of rainbow sheen with oil spots (Heavier)



Sheen Stir-Test:

6-12 inches : Streamers of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-51 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-11 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-11 inches : No Sheen



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-52



FIGURE
95

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-10 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-10 inches : No Sheen



Core Description:

0-10 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-53



FIGURE
96

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Initial Observation:

Cover of brittle rainbow sheen



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-54

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : Lighter
6-12 inches : No Sheen



Probing Description:

0-6 inches : Streamers of non-brittle silver gray sheen
6-12 inches : Streamers of non-brittle silver gray sheen



Core Description:

0-6 inches : Gray clayey silt with organic material
6-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-55

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

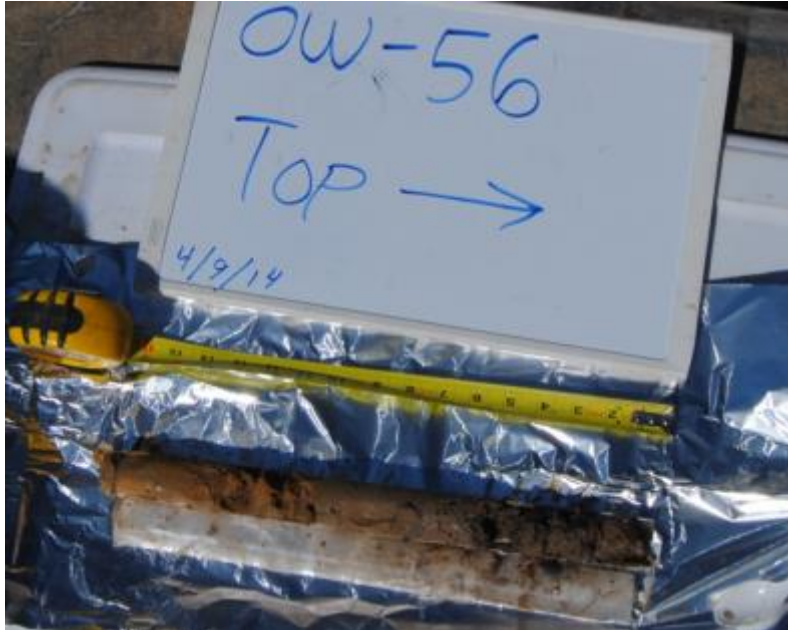
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-5 inches : Gray silty clay with organic material
5-12 inches : Gray and reddish brown mottled clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-56

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-4 inches : Gray silty clay with organic material
4-12 inches : Gray and reddish brown clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-57

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

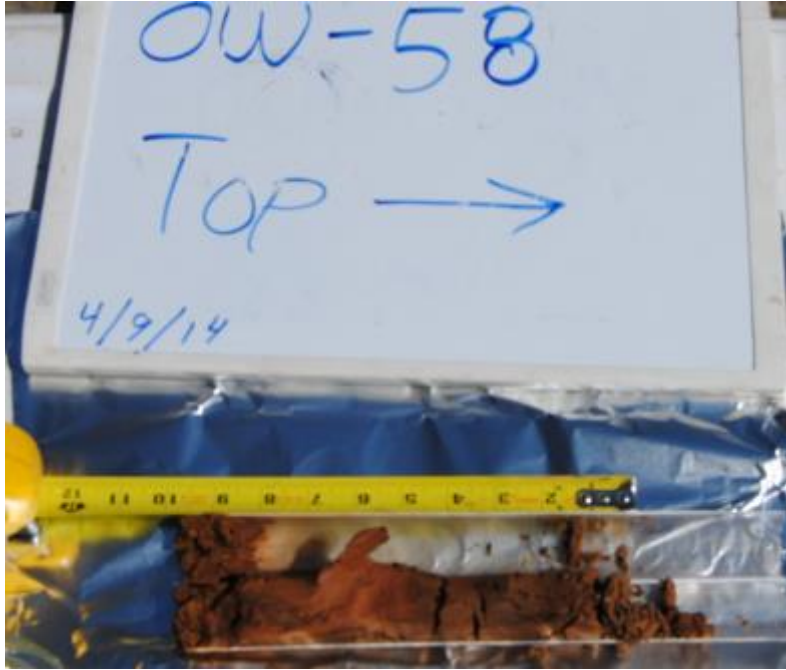
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-9 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-9 inches : No Sheen



Core Description:

0-4 inches : Reddish brown clayey silt (MH)
4-9 inches : Reddish brown silty clay (CL)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-58

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-4 inches : Gray silty clay (CL) with organic material, soft
4-12 inches : Gray and reddish brown clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-59

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-10.5 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-10.5 inches : No Sheen



Core Description:

0-2 inches : Gray silty clay (CL) with organic material
2-10.5 inches : Gray and reddish brown clayey silt (MH)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-60

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-6 inches : No
6-12 inches : No

Overall Qualitative Sheening Amount:

0-6 inches : No Sheen
6-12 inches : No Sheen



Core Description:

0-12 inches : Gray and reddish brown mottled silt with clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-61

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter



Probing Description:

Surface : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide)
0-6 inches : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide)
6-12 inches : Streamers of non-brittle silver gray sheen with oil spots (<0.5-inch wide)



Core Description:

0-12 inches : Gray silty clay (CL), soft



Sheen Stir-Test:

0-6 inches : Streamers of rainbow sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-62

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-6 inches : Yes
6-12 inches : Yes

Overall Qualitative Sheening Amount:

0-6 inches : Heavier
6-12 inches : Lighter



Sheen Stir-Test:

6-12 inches : Patch of silver gray sheen
(Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Open Water
Location – OW-62 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Humic material with organics
0.1-6 inches : Reddish brown clay, no plasticity

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-1

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-3 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-3 inches : No Sheen



Initial Observation:

Patches of brittle silver gray sheen



Core Description:

No description

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-2

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Probing Description:

Surface : Patches/streamers of non-brittle silver gray sheen (light sheen)
0-6 inches : Patches/streamers of non-brittle silver gray sheen (light sheen)



Core Description:

0-0.1 inches : Humic material with organics
0.1-6 inches : Brown silty clay with rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-3



FIGURE
109

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



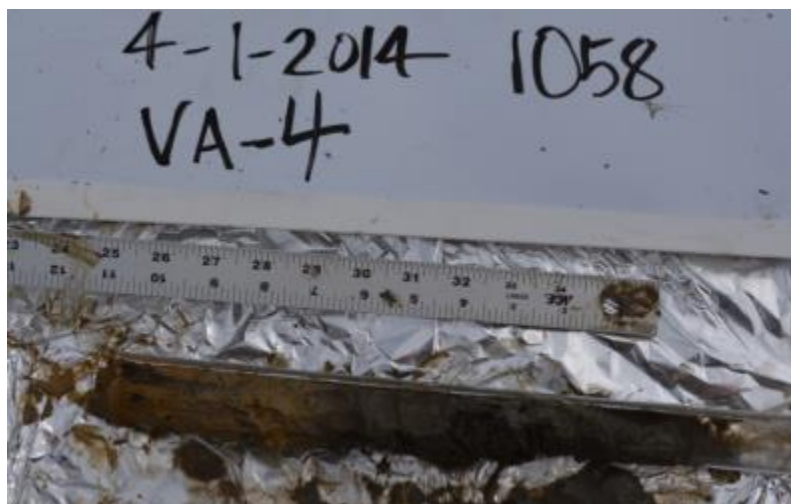
Initial Observation:

Patches of non-brittle silver gray sheen



Probing Observation:

0-6 inches : Streamer (< 6") of non-brittle silver gray sheen
6-12 inches : Streamer (< 6") of non-brittle silver gray sheen (light sheen)



Core Description:

0-0.1 inches : Humic material with organics
0.1-6 inches : Humic material, some clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-4

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Sheen Stir-Test:

0-0.1 inches : Patches of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-4 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Probing Description:

6-12 inches : Patch (< 1") of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Humic material with twigs
0.1-6 inches : Reddish brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-5



FIGURE
112

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

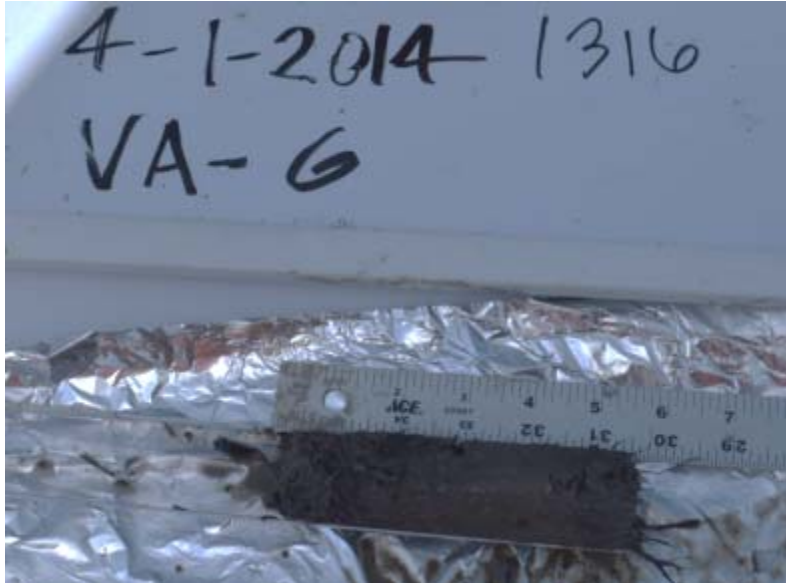
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-5 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-5 inches : No Sheen



Core Description:

0-0.1 inches : Humic material with twigs
0.1-5 inches : Humic material with twigs and roots, some clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-6

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Humic material
0.1-6 inches : Gray clayey silt

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-7

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : Yes

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : Lighter



Core Description:

0-0.1 inches : Brown silt
0.1-6 inches : Silt with humic material, some clay

No Photo

Sheen Stir-Test:

0.1-6 inches : Streamers of silver gray sheen (Lighter; sheen was not able to capture in the photograph due to light)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-8



FIGURE
115

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Silt, organic matter (light sheen observed)
0.1-6 inches : Silty clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-9



FIGURE
116

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter



Initial Observation:

Streamer of non-brittle silver gray sheen with four oil spots (<0.1-inch)



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Brown silt
0.1-6 inches : Humic material with rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-10

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter



Sheen Stir-Test:

0-0.1 inches : Streamers of rainbow/silver gray sheen (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-10 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : Yes

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Medium



Initial Observation:

Patches/streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen
0-6 inches : Patches/streamers of non-brittle silver gray sheen (light sheen)
6-12 inches : Patches/streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Brown silt, very little visible sheen
0.1-6 inches : Silt, humic material, roots, very little sheen in 0.1-4"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-11

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes

0-6 inches : Yes

6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : No

0.1-6 inches : Yes

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter

0.1-6 inches : Medium



Sheen Stir-Test:

0.1-6 inches : Streamers of silver gray sheen (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-11 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



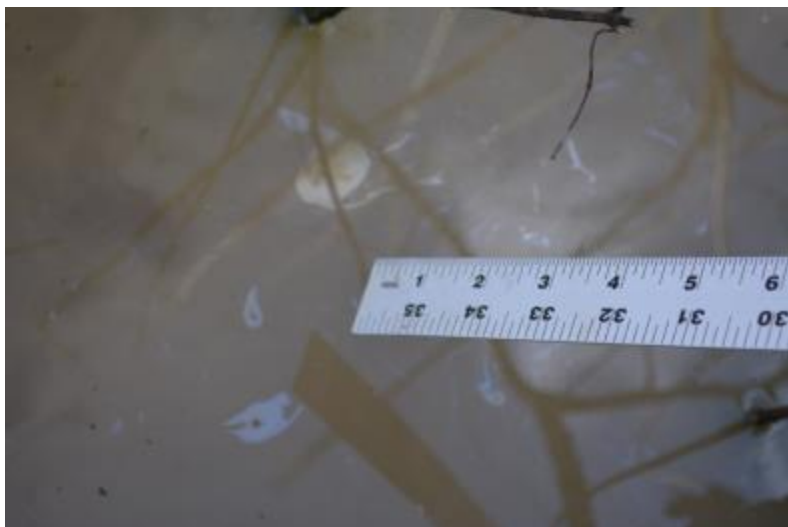
Initial Observation:

Patches/streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen



Probing Observation:

0-6 inches : Streamer of non-brittle rainbow sheen with three oil spots (<0.25-inch wide)
6-12 inches : Streamer of non-brittle silver gray sheen

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-12



FIGURE
121

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Core Description:

0-0.1 inches : Dark brown silt, very little sheen
0.1-6 inches : Brown silty clay



Sheen Stir-Test:

0-0.1 inches : Patches of silver gray sheen (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-12 (continued)



FIGURE
122

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter



Initial Observation:

Patches of non-brittle silver gray sheen



Probing Observation:

Surface : Patches of non-brittle silver gray sheen
0-6 inches : Patches of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Humic material with organics
0.1-6 inches : Clayey silt with roots

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-13



FIGURE
123

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter



Sheen Stir-Test:

0-0.1 inches : Streamers of silver gray sheen with occasional oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-13 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



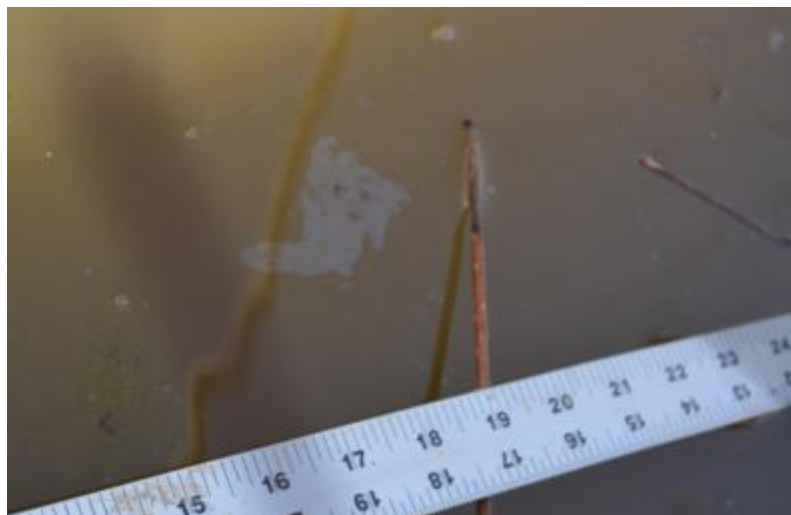
Initial Observation:

Patches/streamers of non-brittle silver gray sheen (three to four patches, one streamer)



Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen



Probing Observation:

0-6 inches : Streamers of non-brittle rainbow sheen with two oil spots (<0.5-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-14

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

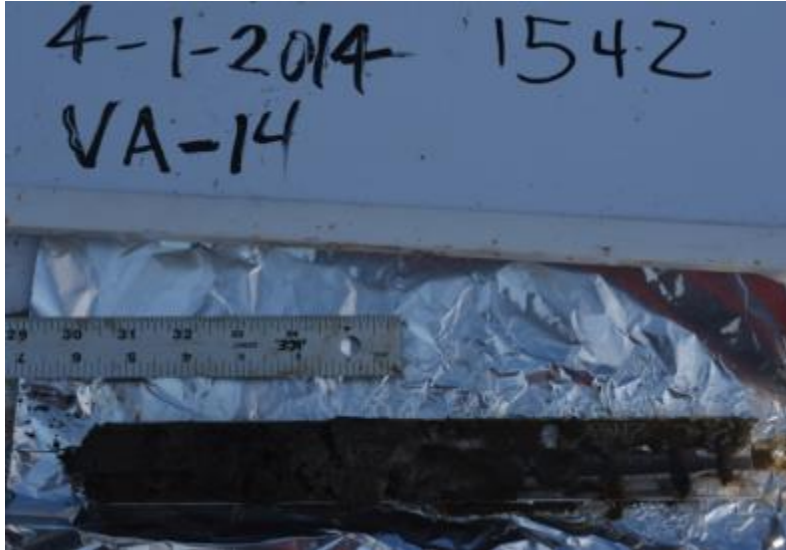
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Core Description:

0-0.1 inches : Gray silt with rootlets
0.1-6 inches : Gray clayey silt with rootlets

No Photo

Sheen Stir-Test:

0-0.1 inches : Patch of silver gray sheen
(Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-14 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Silt with humic material
0.1-6 inches : Brown silt with some clay and rootlets

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-15

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-4 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-4 inches : No Sheen



Initial Observation:

Patch of non-brittle rainbow sheen with one oil spot (0.25-inch wide)



Core Description:

0-0.1 inches : Brown humic material with roots
0.1-4 inches : Clayey silt with roots

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-16



FIGURE
128

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Brown silt with roots
0.1-6 inches : Brown silty clay

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-17

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

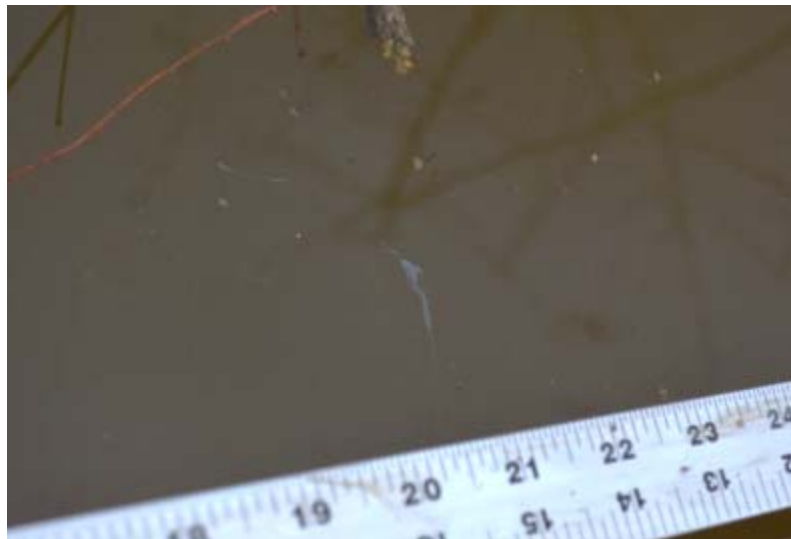
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Medium
0.1-6 inches : Lighter



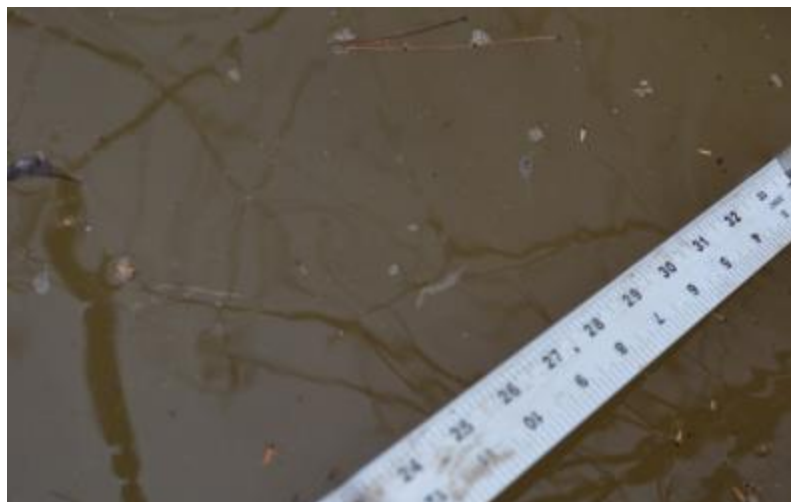
Initial Observation:

Streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches of non-brittle silver gray sheen



Probing Observation:

0-6 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.25-inch wide)
6-12 inches : Streamers of non-brittle silver gray sheen with one oil spot (<0.25-inch wide)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-18

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

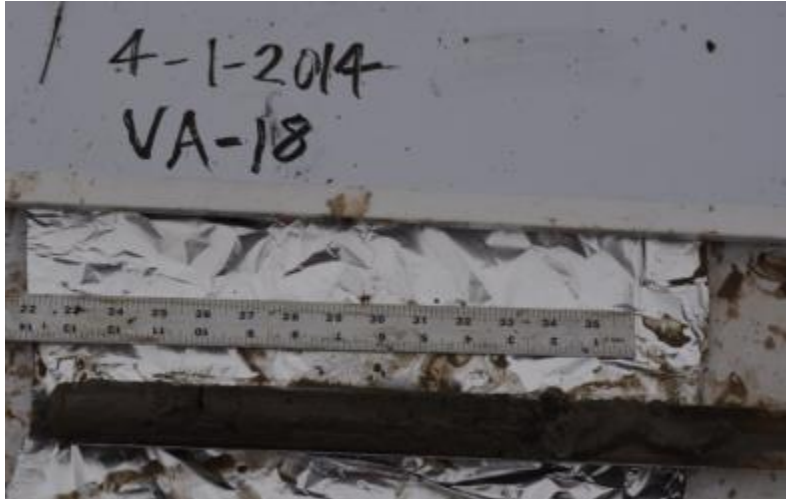
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Medium
0.1-6 inches : Lighter



Core Description:

0-0.1 inches : Brown silt with humic material
0.1-6 inches : Brown silt with some clay



Sheen Stir-Test:

0-0.1 inches : Streamers of silver gray sheen
(Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-18 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Initial Observation:

Streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Brown humic material
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-19



FIGURE
132

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen

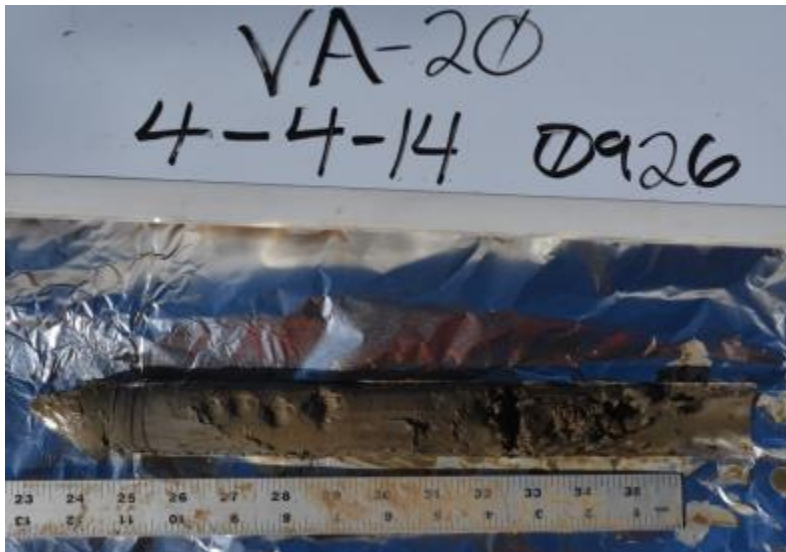
No Photo

Initial Observation:

Streamers of silver gray sheen

Core Description:

0-0.1 inches : Silt, some clay, roots
0.1-6 inches : Brown clay, soft



MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-20



FIGURE
133

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : Yes
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

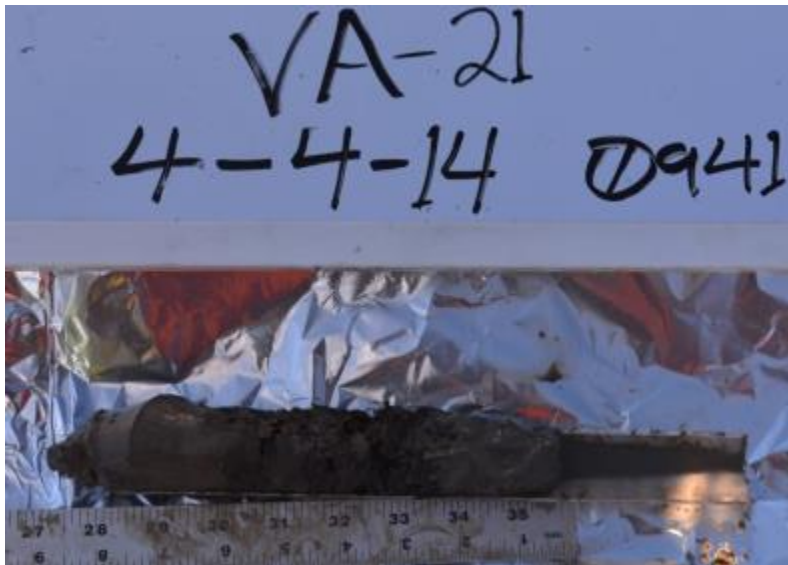
Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : Lighter

No Photo

Probing Description:

0-6 inches : Streamers of non-brittle silver gray sheen with one oil spot (0.1-inch wide, very light sheen to capture in the photograph)



Core Description:

0-0.1 inches : Brown silt, roots at 2.4"
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-21



FIGURE
134

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Brown silt
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-22



FIGURE
135

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Humic material, roots
0.1-6 inches : Brown clay, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-23



FIGURE
136

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter

No Photo

Probing Description:

6-12 inches : Patches of non-brittle silver gray sheen with one oil spot (0.1-inch wide)

Core Description:

0-6 inches : Brown silt, saturated

Sheen Stir-Test:

0-0.1 inches : Patches of rainbow sheen with one oil spot (0.25-inch wide; Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-24

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Brown clayey humic material
0.1-6 inches : Gray clayey silt, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-25



FIGURE
138

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-0.1 inches : Humic material with roots
0.1-6 inches : Brown clayey silt, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-26

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

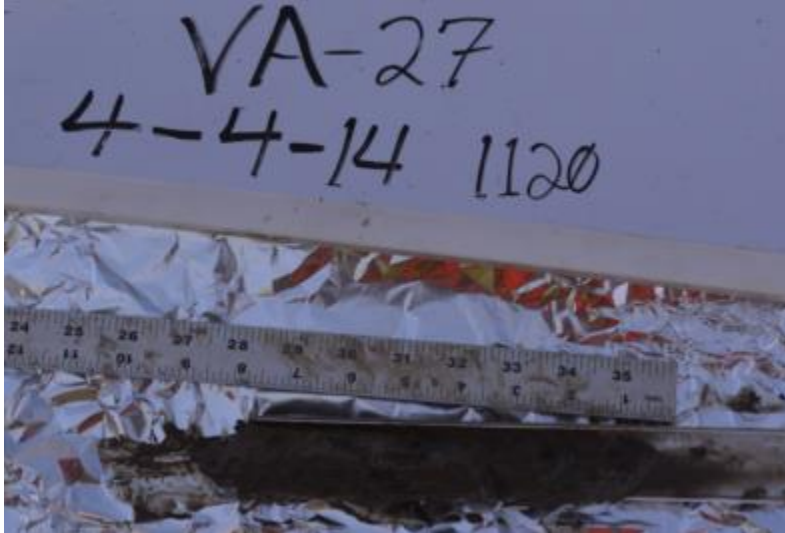
Surface : No
0-6 inches : No
6-12 inches : No

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : No Sheen
0.1-6 inches : No Sheen



Core Description:

0-6 inches : Brown silt with roots

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-27



FIGURE
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Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

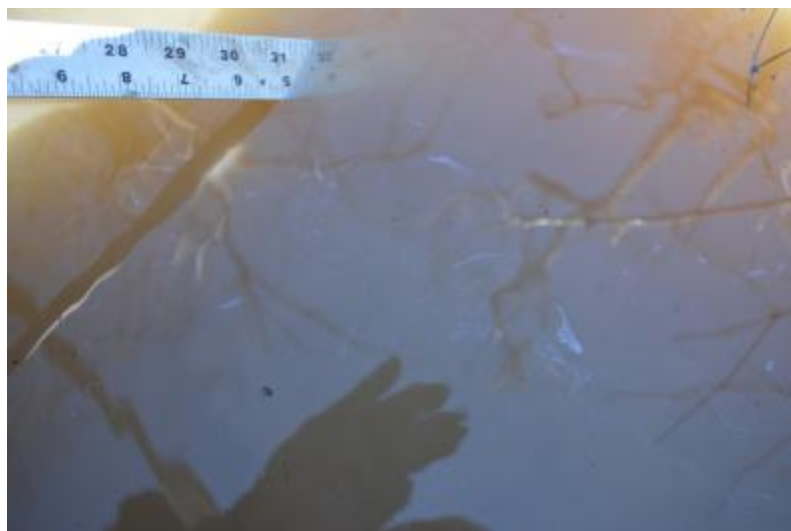
Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



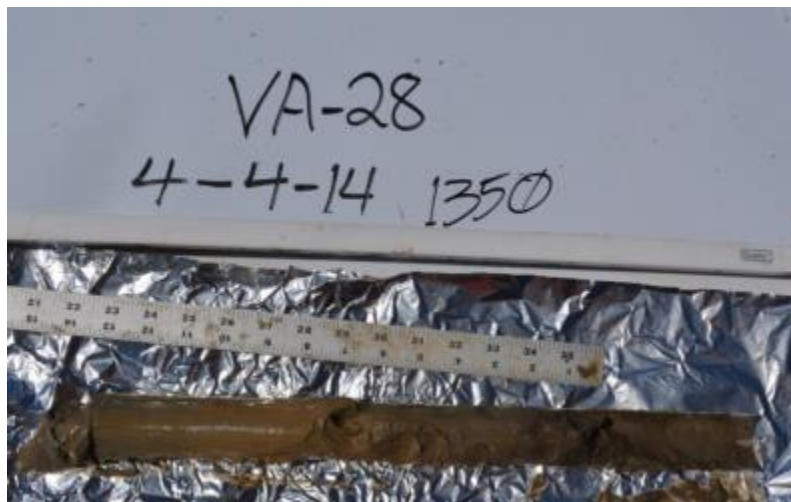
Probing Observation:

Surface : Patches/streamers of non-brittle silver gray sheen with one oil spot (0.25-inch wide)
6-12 inches : Patches/streamers of non-brittle silver gray sheen with four oil spots (0.1-inch wide)



Probing Observation:

0-6 inches : Patches/streamers of non-brittle rainbow sheen with three oil spots



Core Description:

0-0.1 inches : Brown clayey silt, rootlets
0.1-6 inches : Brown clayey silt, soft

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-28

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter

No Photo

Sheen Stir-Test:

0-0.1 inches : Streamers of silver gray sheen
(Lighter; very light sheen to
capture in the photograph)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-28 (continued)

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Medium
0.1-6 inches : Lighter

No Photo

Probing Description:

Surface : Patches/streamers of non-brittle silver gray sheen with two oil spots (0.1-inch wide)
0-6 inches : Patches/streamers of non-brittle silver gray sheen
6-12 inches : Patches/streamers of non-brittle silver gray sheen

Core Description:

0-6 inches : Humic material with silt



Sheen Stir-Test:

0-0.1 inches : Patches/streamers of silver gray sheen with oil spots (0.25-inch wide; Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-29

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : Yes

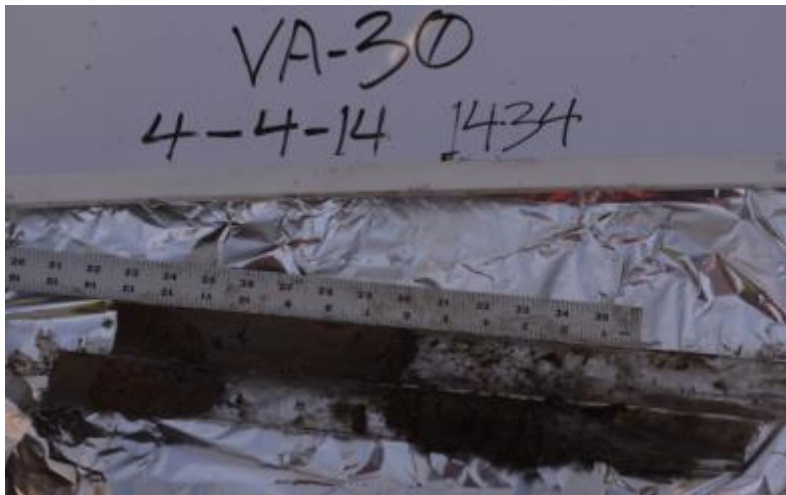
Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Lighter

No Photo

Probing Description:

6-12 inches : Streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Brown silt, soft, light sheen at 0-0.1"
0.1-6 inches : Brown silt, roots, light sheen at 0.1-3"



Sheen Stir-Test:

0-0.1 inches : Patches/Streamers of rainbow sheen with 10 oil spots (Heavier)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-30

Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : Yes

Overall Qualitative Sheening Amount:

0-0.1 inches : Heavier
0.1-6 inches : Medium



Sheen Stir-Test:

0.1-6 inches : Patches/Streamers of rainbow sheen with five oil spots (Medium)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-30 (continued)

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

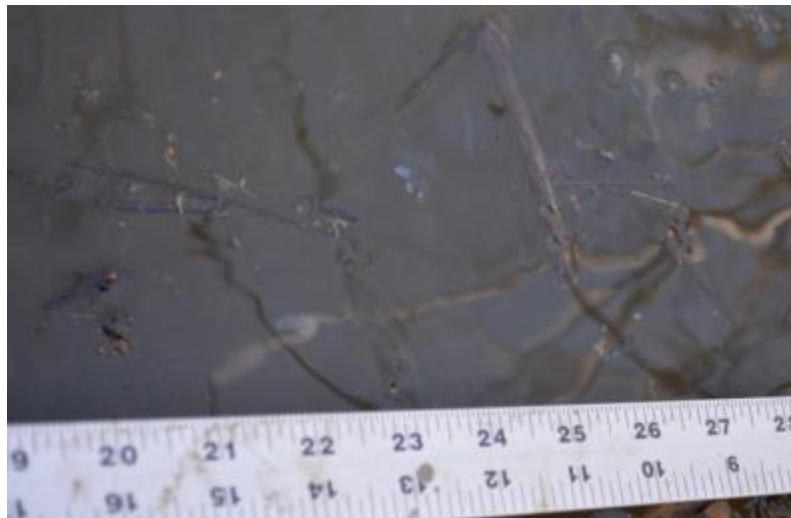
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

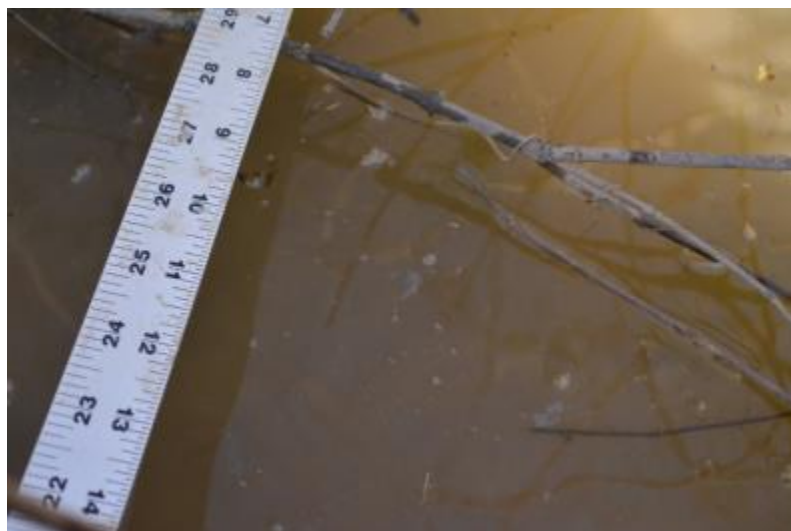
Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Initial Observation:

Patches/streamers of non-brittle silver gray sheen



Probing Observation:

Surface : Patches of non-brittle silver gray sheen



Probing Observation:

0-6 inches : Patches/streamers of non-brittle rainbow sheen
6-12 inches : Patches/streamers of non-brittle rainbow sheen

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-31

Sheen Present During Initial Observation: Yes

Pictures shown for core photo and if sheen present

Sheen During Probing:

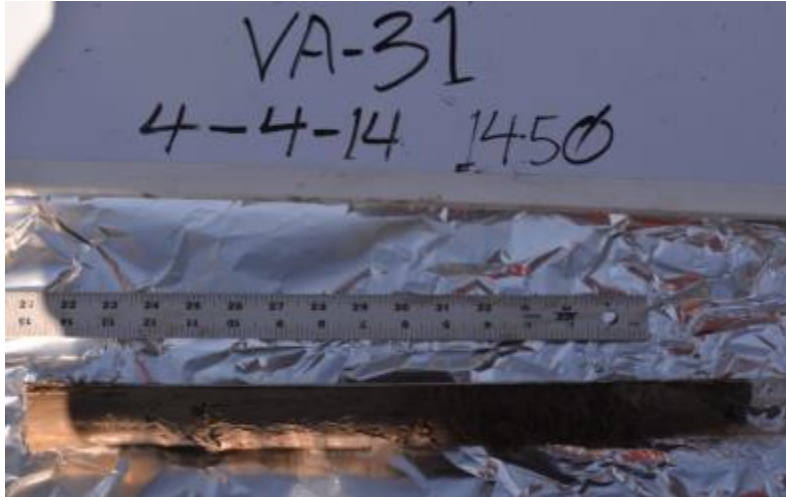
Surface : Yes
0-6 inches : Yes
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : Yes
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Core Description:

0-0.1 inches : Brown silt, very light sheen
0.1-6 inches : Humic material, rootlets

No Photo

Sheen Stir-Test:

0-0.1 inches : Streamers of silver gray sheen
with one oil spot (Lighter)

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-31 (continued)



FIGURE
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Sheen Present During Initial Observation: No

Pictures shown for core photo and if sheen present

Sheen During Probing:

Surface : No
0-6 inches : No
6-12 inches : Yes

Sheen During Stir-Test:

0-0.1 inches : No
0.1-6 inches : No

Overall Qualitative Sheening Amount:

0-0.1 inches : Lighter
0.1-6 inches : Lighter



Probing Description:

6-12 inches : Streamers of non-brittle silver gray sheen



Core Description:

0-0.1 inches : Humic material, rootlets
0.1-6 inches : Brown silt, minor sheet spot at 5"

MAYFLOWER PIPELINE INCIDENT RESPONSE
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
DOWNSTREAM AREAS PRE-DESIGN STUDY

Cove Heavily Vegetated
Area Location – VA-32



FIGURE
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